REPORT ON THE RESULTS OF SITE TESTING TO DETERMINE NATIONAL REGISTER ELIGIBILITY FOR SITES 39GR32, 39GR53, 39LM33 and 39LM39, IN THE LAKE FRANCIS CASE AREA, SOUTH DAKOTA

VOLUME II: APPENDICES

by

R. PETER WINHAM

With contributions by L. Adrien Hannus, Loren Horton, Joseph Tiffany and Frederick Westin

JUNE 1987

Prepared for
U.S. ARMY CORPS OF ENGINEERS, OMAHA DISTRICT
CONTRACT NUMBER: DACW45-86-M-1517
ARCHEOLOGY LABORATORY OF THE CENTER FOR WESTERN STUDIES
AUGUSTANA COLLEGE, SIOUX FALLS, SOUTH DAKOTA 57105

ARCHEOLOGICAL CONTRACT SERIES NUMBER 29

US Army Corps of Engineers
Omaha District

FINAL REPORT

REPORT ON THE RESULTS OF SITE TESTING TO DETERMINE NATIONAL REGISTER ELIGIBILITY FOR SITES 39GR32, 39GR53, 39LM33 and 39LM39, IN THE LAKE FRANCIS CASE AREA, SOUTH DAKOTA.

VOLUME II

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VOLUME 2

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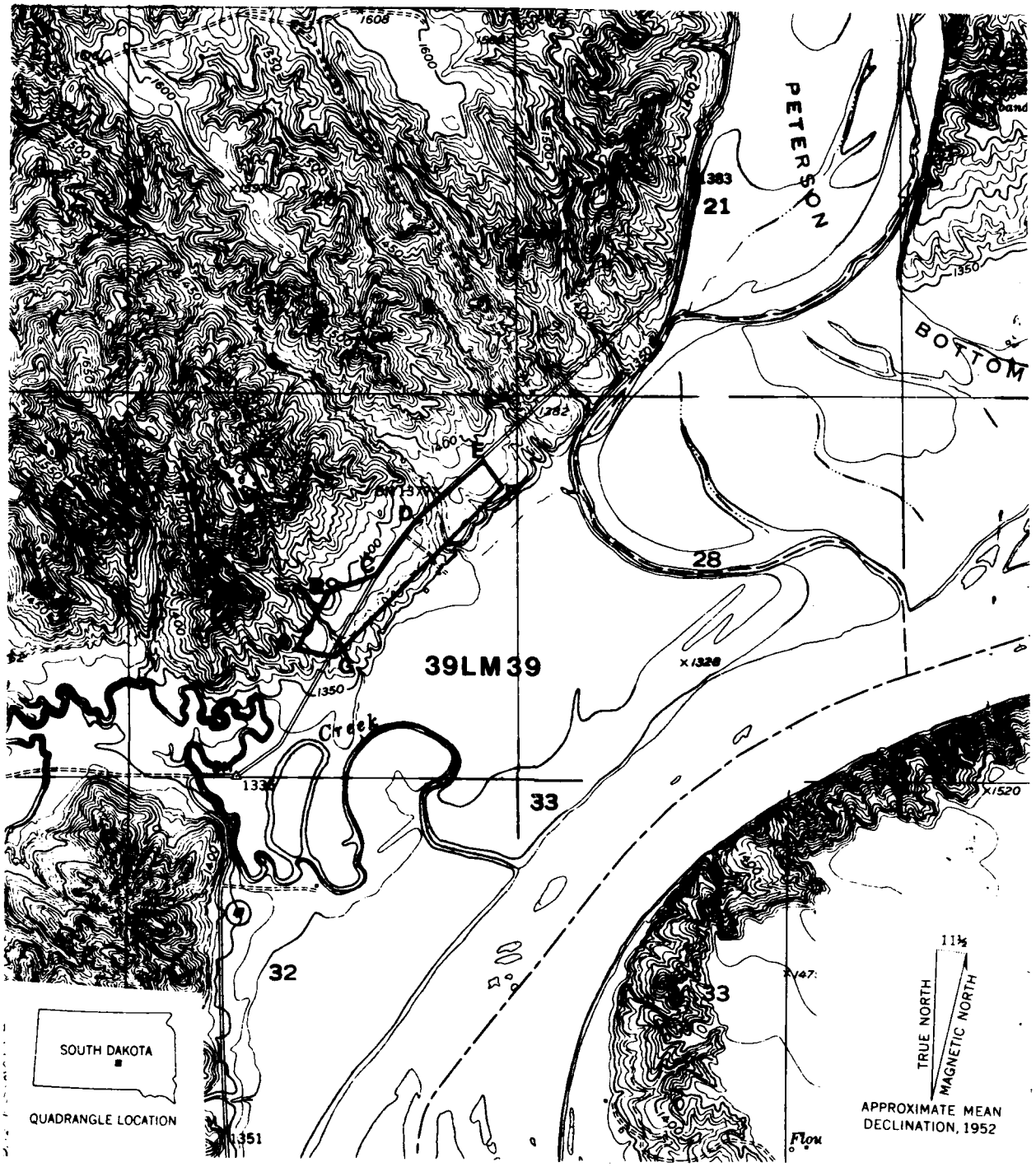
APPENDIX 1

Location of Sites on UGSG 7.5' Quadrangle Maps



IONA NW, S. DAK.

NW/4 IONA 15' QUADRANGLE

N4337.5—W9922.5/7.5

1952

SCALE 1:24000

1 0 1 MILE

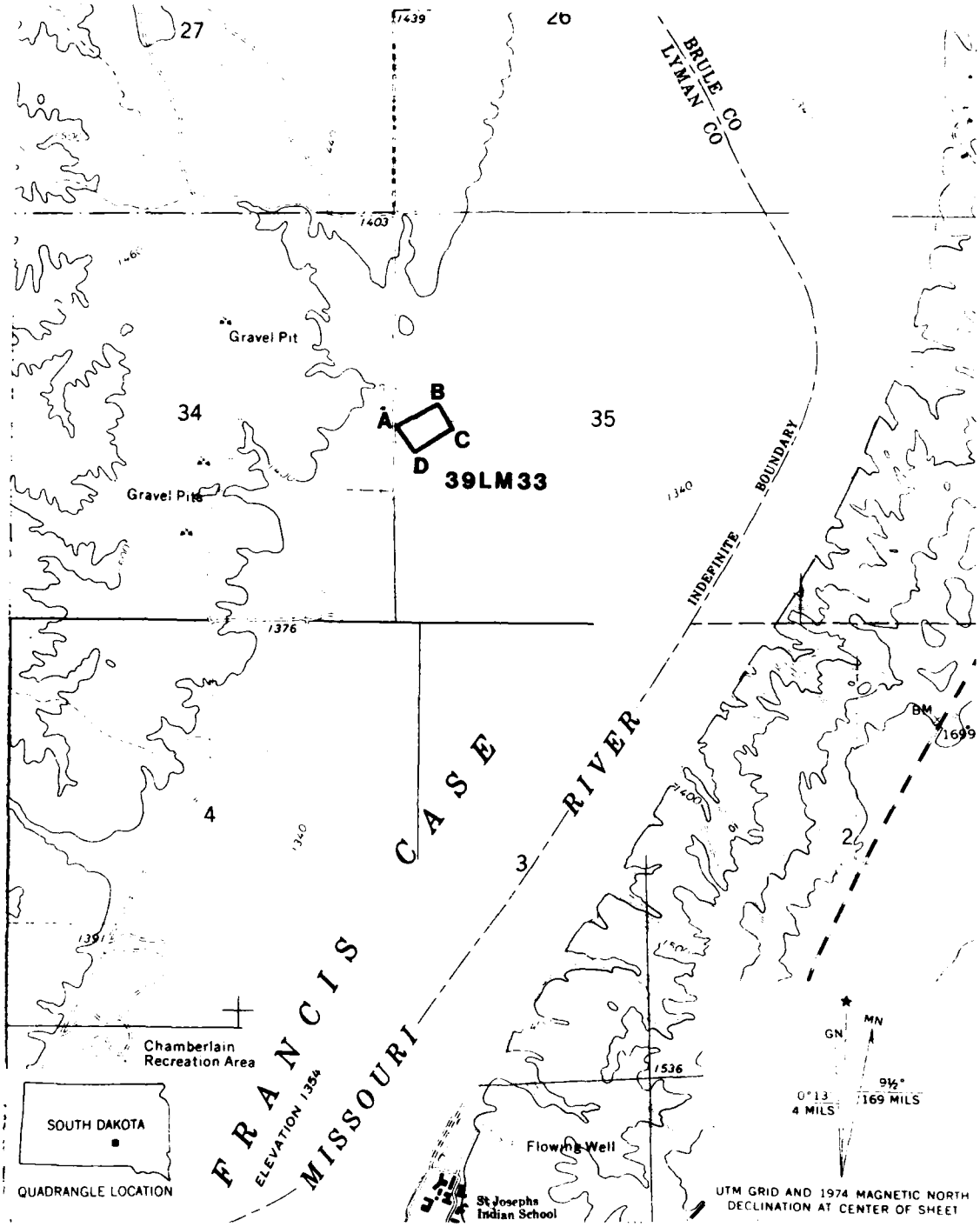
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 5 0 1 KILOMETER

CONTOUR INTERVAL 10 FEET

DATUM IS MEAN SEA LEVEL

Location of site 39LM39.



CHAMBERLAIN, S. DAK.

SE/4 CHAMBERLAIN 15' QUADRANGLE

N4345—W9915/7.5

1974

SCALE 1:24 000

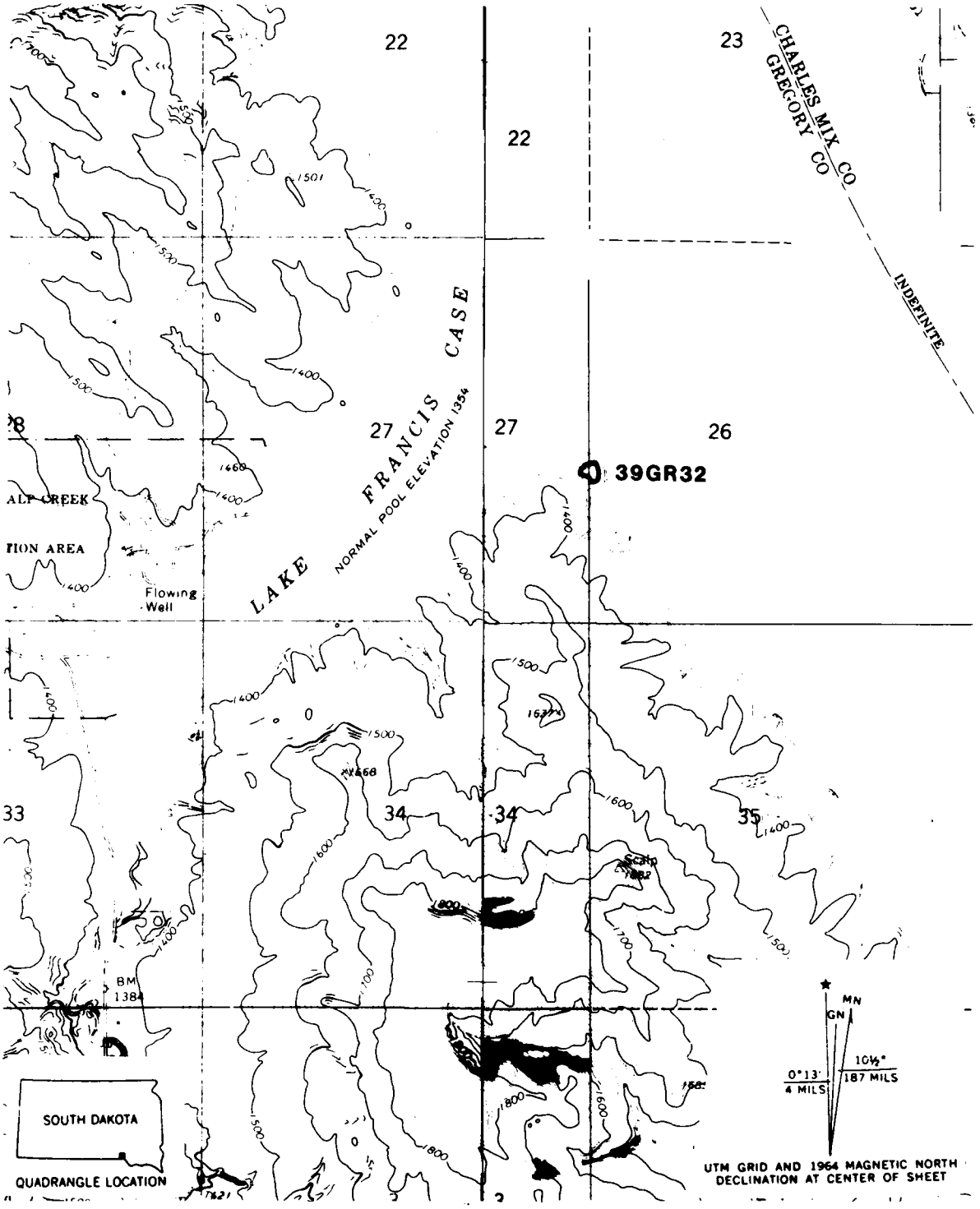
1 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETRE

CONTOUR INTERVAL 20 FEET

Location of site 39LM33.



LAKE ANDES SW, S. DAK.

N4300—W9837.5/7.5

1964

SCALE 1:24000

1 0 1 MILE

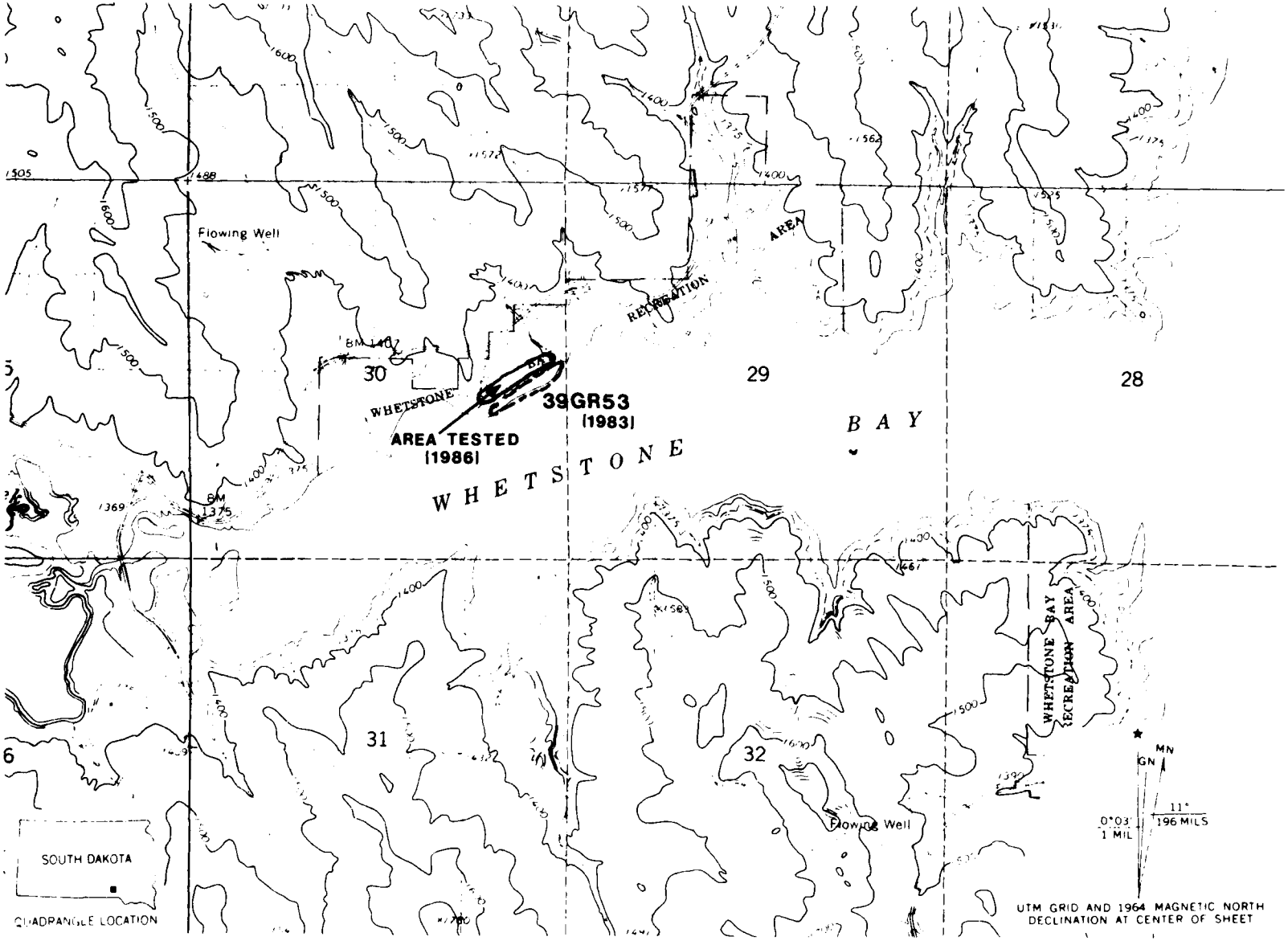
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 5 0 1 KILOMETER

CONTOUR INTERVAL 20 FEET

DATUM IS MEAN SEA LEVEL

Location of site 39GR32.



Location of site 39GR53.

APPENDIX 2

National Register Nomination Form for Site 39LM33

NPS Form 10-900
(3-82)

OMB No. 1024-0018
Expires 10-31-87

United States Department of the Interior
National Park Service

National Register of Historic Places Inventory—Nomination Form

For NPS use only

received

date entered

See instructions in *How to Complete National Register Forms*
Type all entries—complete applicable sections

1. Name

historic 39LM33

and or common DINEHART VILLAGE SITE

2. Location

street & number _X_ not for publication

city, town CHAMBERLAIN __X__ vicinity of

state SOUTH DAKOTA code 46 county LYMAN code 085

3. Classification

Category	Ownership	Status	Present Use	
___ district	_X_ public	___ occupied	_X_ agriculture	___ museum
___ building(s)	___ private	_X_ unoccupied	___ commercial	___ park
___ structure	___ both	___ work in progress	___ educational	___ private residence
_X_ site	**Public Acquisition**	**Accessible**	___ entertainment	___ religious
___ object	___ in process	_X_ yes: restricted	___ government	___ scientific
	___ being considered	___ yes: unrestricted	___ industrial	___ transportation
		___ no	___ military	___ other:

4. Owner of Property

name U.S. DEPARTMENT OF THE ARMY, OMAHA DISTRICT CORPS OF ENGINEERS

street & number 1612 U.S. POSTOFFICE AND COURTHOUSE

city, town OMAHA ___ vicinity of state NEBRASKA 68102

5. Location of Legal Description

courthouse, registry of deeds, etc. LYMAN COUNTY COURTHOUSE

street & number

city, town KENNEBEC state SOUTH DAKOTA

6. Representation in Existing Surveys

title SEE CONTINUATION SHEET has this property been determined eligible? ___ yes _X_ no

date ___ federal ___ state ___ county ___ local

depository for survey records

city, town state

7. Description

Condition		Check one	Check one
___ excellent	___ deteriorated	X unaltered	X original site
X good	___ ruins	___ altered	___ moved date ___
___ fair	___ unexposed		

Describe the present and original (if known) physical appearance

Context: The site was first recorded by W.H. Over in 1918 as the Dinehart Village (39LM33) (Sigstad and Sigstad 1973:149). This Dinehart Village site, as recorded by Over, is thought to encompass three sites, currently designated as 39LM55 (King site), 39LM33 (Dinehart Village site) and 39LM34 (Mallory site) (Winham and Lueck 1984:98-99).

The site was mapped on June 26, 1953 (Winham 1987:Figure 11), with test excavations conducted by a team led by C.S. Smith of the University of Kansas, Museum of Natural History. The site was reexamined and further excavated by Paul. L. Cooper of the Smithsonian Institution-River Basin Surveys between August 26 and September 16, 1954.

A survey in 1983 (Winham and Lueck 1984) essentially confirmed the presence of the site. In 1986 the site was intensively examined, mapped and evaluated (Winham 1987).

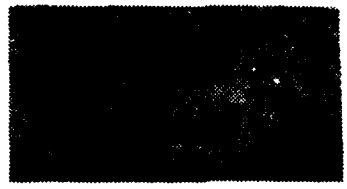
The Dinehart Village site is an unfortified earthlodge village located on a low bench or terrace above the Missouri River bottomland, now inundated by Lake Francis Case. The site is within the boundaries of the land administered by the United States Army Corps of Engineers as a part of the Lake Francis Case project.

Description: The site covers an area of approximately 20 acres, extending approximately 175 meters north to south and about 100 meters east to west. The site boundaries are defined by natural features on the north, east and southeast, while an arbitrary line following a faint two-track that cuts across the terrace from the southeast to the northwest completes the site limits. This latter boundary line is based on an assessment of the potential for buried cultural material and the location of known site features.

At least five earthlodges were present at this site, two of which have been extensively excavated. The site appears to be a single component Initial Middle Missouri village, but a few Extended Middle Missouri ceramic types are also present. Apart from the lodge depressions, the prehistoric component is evidenced by a sparse scatter of cultural material sometimes exposed on the surface, and the continuing exposure of midden deposits and cache pits in the cutbank at the southeast edge of the site (Winham 1987: Figure 12).

More recent features include an irrigation ditch along the northern edge of the site, a two-track, an old road bed and the scant remains of a reported dwelling, also in the southeast part of the site. These activities form one series of adverse effects, but the most severe adverse impact is the ongoing erosion of the lake cutbank.

Archeological excavations of a complete lodge, a large portion of a second lodge and a test trench through a third lodge produced information (plans, profiles, and artifacts) which has yet to be fully evaluated and published.



Representation in Existing Surveys - Site 39LM33

Title: Report on the Results of Site Testing to Determine National Register Eligibility for Sites 39GR32, 39GR53, 39LM33 and 39LM39, in the Lake Francis Case Area, South Dakota (R. Peter Winham with contributions by L. Adrien Hannus, Loren Horton, Joseph Tiffany, and Frederick Westin). Archeology Laboratory of the Center for Western Studies, Augustana College, Sioux Falls, South Dakota.
Date: 1987 Federal (Contract No. DACW45-86-M-1517)
Depository for survey records:
U.S. Army Corps of Engineers, Omaha District, Omaha, Nebraska

Title: Report of a Cultural Resources Reconnaissance of Selected Areas Along the White River and Along the West Bank of Lake Francis Case (R.P. Winham and Edward J. Lueck). Archeology Laboratory of the Center for Western Studies, Augustana College, Sioux Falls, South Dakota.
Date: 1984 Federal (Contract No. DACW45-83-C-0184).
Depository for survey records:
U.S. Army Corps of Engineers, Omaha District, Omaha, Nebraska

Title: Site 39LM33 - Field report (Roger Grange, Jr.). Museum of Natural History, University of Kansas, Lawrence, Kansas.
Date: 1953 Federal (Missouri Basin Project)
Depository for survey records:
Ms. on file, South Dakota Archaeological Research Center, Rapid City , SD (copy in Winham 1987: Appendix 9).

8. Significance

Period	Areas of Significance—Check and justify below				
X prehistoric	X archeology-prehistoric	community planning	landscape architecture	religion	
1400–1499	archeology-historic	conservation	law	science	
1500–1599	agriculture	economics	literature	sculpture	
1600–1699	architecture	education	military	social/ humanitarian	
1700–1799	art	engineering	music	theater	
1800–1899	commerce	exploration/settlement	philosophy	transportation	
1900–	communications	industry	politics/government	other (specify)	
		invention			

Specific dates **Builder/Architect**

Statement of Significance (in one paragraph)

Dating: No absolute dates have been obtained from this site. The inclusion of some Great Oasis-like ceramics within the Initial Middle Missouri assemblage suggests it may be early, while the presence of Extended Middle Missouri ceramics suggests it may be late.

Significance: The Dinehart Village (39LM33) is an unfortified Initial Middle Missouri site located along the west bank of Lake Francis Case. Its location, within what Lehmer (1971:Figure 70) defines as a contact zone between Initial Middle Missouri and Extended Middle Missouri sites and which Wood (1974:14) regards as one of the more important sections of the Missouri Valley, "part of the interface between two major cultural traditions", further enhances the importance of the site. Two complete and two partial earthlodges are available for future scientific study, and the site possesses an area of midden deposits and additional features (cache pits, hearths exposed in the cutbank) that have not been evaluated. The results of recent coring (Winham 1987) indicate that deposits at the site can be deeply buried, and the potential for good preservation of both cultural and environmental indicators is excellent. Important information on village life and cultural interactions would be gained from comparative studies of the inter- and intra-site variability using data from Dinehart Village, as evidenced by studies on the previously excavated material (Chomko 1976; A. Johnson 1979; C. Johnson 1984; Weakly 1971). The significance of the Missouri River in the Plains Village period cannot be overstressed. With the creation of the reservoirs along the Missouri River destroying as much as 75 to 80 percent of this archeological record (Steinacher and Toom 1985:1-50), all sites still preserved near the Missouri Trench take on an added significance. They are the last of a resource base with which scientists can hope to understand past culture processes in the Middle Missouri subarea of the Plains.

9. Major Bibliographical References

SEE CONTINUATION SHEET

10. Geographical Data

Acreage of nominated property 20

Quadrangle name CHAMBERLAIN **Quadrangle scale** 1:24,000

UTM References

	Zone	Easting	Northing
A	14	473820	4855000
B	14	473980	4855900
C	14	474040	4855000
D	14	473880	4855420
E			
F			
G			
H			

Verbal boundary description and justification The site is situated at 1375' amsl, naturally defined on a low terrace with drainage channels to the north and south and Lake Francis Case to the east. The west boundary depicts the expected extent of cultural deposits. The site lies just over 2 miles north of Chamberlain.

List all states and counties for properties overlapping state or county boundaries

state	code	county	code
state	code	county	code

11. Form Prepared By

name/title R. Peter Winham, Assistant Director

organization Archeology Lab, Center for Western Studies **date** May 27, 1987

street & number Augustana College **telephone** (605) 336-5493

city or town Sioux Falls **state** South Dakota

12. State Historic Preservation Officer Certification

The evaluated significance of this property within the state is:

___ national ___ state ___ local

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service.

State Historic Preservation Officer signature

title **date**

For NPS use only

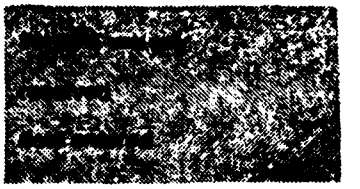
I hereby certify that this property is included in the National Register

date

Keeper of the National Register

Attest: **date**

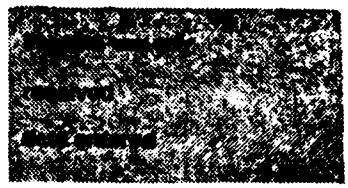
Chief of Registration



Major Bibliographic References

Winham, R. Peter
1987 Report on the Results of Site Testing to Determine National Register Eligibility for Sites 39GR32, 39GR53, 39LM33 and 39LM39, in the Lake Francis Case Area, South Dakota. Archeological Contract Series 29. Archeology Laboratory of the Center for Western Studies, Augustana College, Sioux Falls, South Dakota. Submitted to U.S. Army Corps of Engineers, Omaha District, Contract No. DACW45-86-M-1517.

Winham, R. Peter, and Edward J. Lueck
1984 Report of a Cultural Resources Reconnaissance of Selected Areas Along the White River and Along the West Bank of Lake Francis Case. Archeological Contract Series 11. Archeology Laboratory of the Center for Western Studies, Augustana College, Sioux Falls, South Dakota. Submitted to U.S. Army Corps of Engineers, Omaha District, Contract No. DACW45-83-C-0184.



Other quoted references

Chomko, Stephen A.
1976 Faunal Exploitation in the Initial Middle Missouri Variant. In Fay Tolton and the Initial Middle Missouri Variant, edited by Raymond W. Wood, pp. 35-40. Missouri Archaeological Society Research Series 13. University of Missouri-Columbia and Missouri Archaeological Society.

Johnson, Ann Mary
1979 Extended Middle Missouri Components in the Big Bend Region, South Dakota. Special Publications of the South Dakota Archaeological Society Number 1. Vermillion.

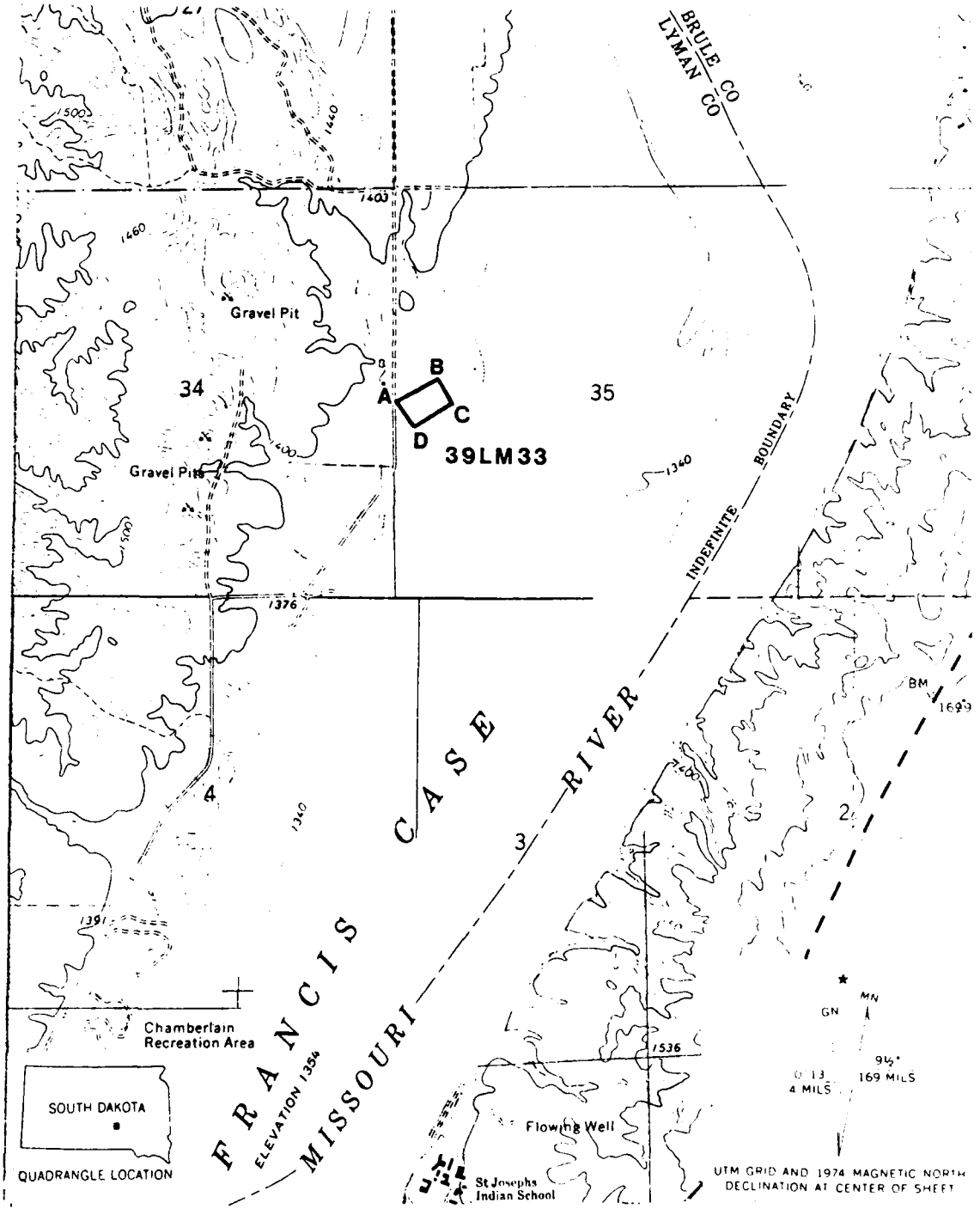
Johnson, Craig M.
1984 Time, Space, and Cultural Tradition as Factors in Lithic Resource Exploitation in the Middle Missouri Subarea. Plains Anthropologist 29(106):289-302.

Lehmer, Donald J.
1971 Introduction to Middle Missouri Archeology. Anthropological Papers 1. National Park Service, U.S. Department of the Interior, Washington, D.C.

Steinacher, Terry L., and Dennis L. Toom
1985 A Proposed National Register of Historic Places, Multiple Resource Nomination, for the Historic Resources of the Big Bend Area, South Dakota (Partial Inventory: Prehistoric and Historic Archeological Sites). Department of Anthropology, Division of Archeological Research, University of Nebraska, Lincoln. April 1980, Revised May 1985. Submitted to U.S. Army Corps of Engineers, Omaha District, Contract No. DACW45-78-C-0131.

Weakly, Ward F.
1971 Tree-Ring Dating and Archaeology in South Dakota. Plains Anthropologist Memoir 8.

Wood, Raymond W.
1974 Observations on the Archeological Resources of the Missouri Valley Trench Between Yankton, South Dakota, and Bismarck, North Dakota. Report prepared for Ultrasystems, Inc, Arizona.



CHAMBERLAIN, S. DAK.

SE/4 CHAMBERLAIN 15' QUADRANGLE

N4345—W9915/7.5

1974

SCALE 1:24 000

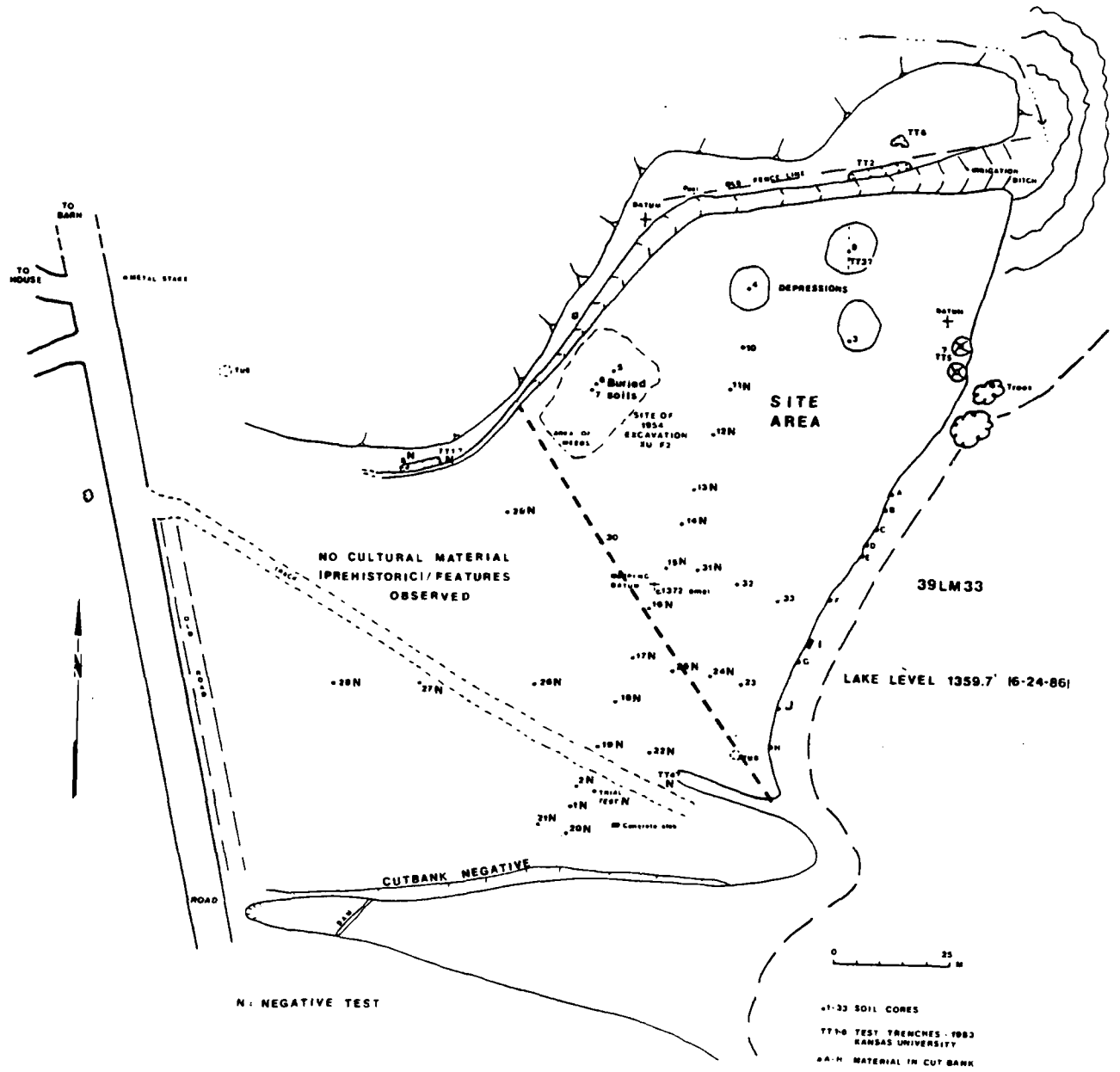
1 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

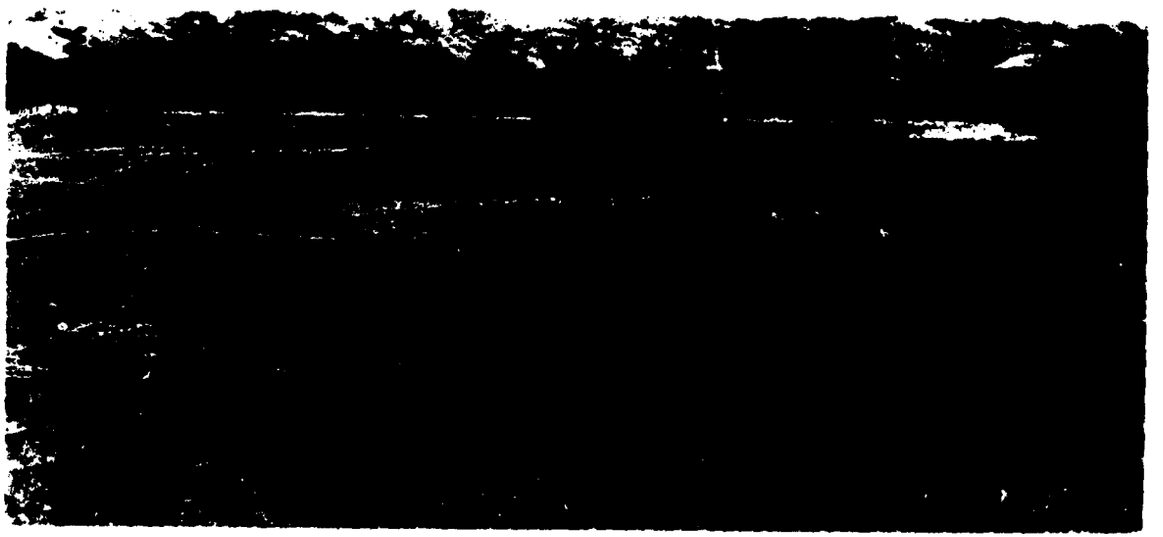
1 5 0 1 KILOMETRE

CONTOUR INTERVAL 20 FEET

Location of site 39LM33.


TO BARN
TO HOUSE
METAL STAKE
TT6
TT2
FENCE LINE
IRRIGATION DITCH
DATUM
TT37
DEPRESSIONS
TT5
Buried Soils
SITE AREA
SITE OF 1954 EXCAVATION SU F2
Trees
NO CULTURAL MATERIAL (PREHISTORIC) FEATURES OBSERVED
39LM33
LAKE LEVEL 1359.7' (6-24-86)
TT4
TRIAL TEST PIT
Concrete slab
CUTBANK NEGATIVE
ROAD
N
0
25
M
N: NEGATIVE TEST
•1-33 SOIL CORES
TT1-6 TEST TRENCHES - 1983 KANSAS UNIVERSITY
•A-N MATERIAL IN CUT BANK

Dinehart Village (39LM33), view facing NNE.



Dinehart Village (39LM33), view facing SE. Site on low terrace (center of frame).

Dinehart Village (39LM33), view facing NE.

Exposed cutbank at the Pinehart Village (39LM33), facing NNW.

APPENDIX 3

National Register Nomination Form for Site 39LM39

NPS Form 10-900
(3-82)

OMB No. 1024-0018
Expires 10-31-87

United States Department of the Interior
National Park Service

National Register of Historic Places Inventory—Nomination Form

For NPS use only

received

date entered

See instructions in *How to Complete National Register Forms*
Type all entries—complete applicable sections

1. Name

historic 39LM39

and or common DEERFLY SITE

2. Location

street & number _X_ not for publication

city, town OACOMA _X_ vicinity of

state SOUTH DAKOTA code 46 county LYMAN code 085

3. Classification

Category	Ownership	Status	Present Use	
___ district	_X_ public	___ occupied	_X_ agriculture	___ museum
___ building(s)	___ private	_X_ unoccupied	___ commercial	___ park
___ structure	___ both	___ work in progress	___ educational	___ private residence
_X_ site	**Public Acquisition**	**Accessible**	___ entertainment	___ religious
___ object	___ in process	_X_ yes: restricted	___ government	___ scientific
	___ being considered	___ yes: unrestricted	___ industrial	___ transportation
		___ no	___ military	___ other:

4. Owner of Property

name U.S. DEPARTMENT OF THE ARMY, OMAHA DISTRICT CORPS OF ENGINEERS

street & number 1612 U.S. POSTOFFICE AND COURTHOUSE

city, town OMAHA ___ vicinity of state NEBRASKA 68102

5. Location of Legal Description

courthouse, registry of deeds, etc. LYMAN COUNTY COURTHOUSE

street & number

city, town KENNEBEC state SOUTH DAKOTA

6. Representation in Existing Surveys

title SEE CONTINUATION SHEET has this property been determined eligible? ___ yes _X_ no

date ___ federal ___ state ___ county ___ local

depository for survey records

city, town state

7. Description

Condition		Check one	Check one
___ excellent	___ deteriorated	X unaltered	X original site
X good	___ ruins	___ altered	___ moved date _____
___ fair	___ unexposed		

Describe the present and original (if known) physical appearance

Context: W.H. Over probably visited the Deerfly site in 1919, which he described as a small fortified Indian village. Archeologists working for the Smithsonian Institution's River Basin Surveys in 1946 and 1947 observed the site, accepting Over's interpretation of it. Collections were made in June 1947 by Cooper and Bauxar and by T.R. Garth in October of 1950. University of Kansas archeologists, under the direction of Carlyle S. Smith, conducted excavations in 1953 (Smith 1953; Grange 1953; Smith and Grange 1958:126-127).

In June 1954 Paul L. Cooper of the SI-RBS dug two small test excavation units at the site. Mallory visited the site in September 1964, collecting several items eroding out of the bank. The Deerfly site was assigned several site numbers including 39LM20, 39LM39, 39LM97 and 39LM117 - all of which refer to the prehistoric occupations of the same area.

In 1983 a survey for the U. S. Army Corps of Engineers by a team from Kansas University Museum of Anthropology (Lees, Brown and Mandel 1985) identified additional historic loci which appear to be contemporary with the area investigated by Smith in 1953.

The Deerfly site is situated on a low terrace, once the second floodplain of the Missouri River, on the west bank of the present day Lake Francis Case. The site is within the boundaries of the land administered by the United State Army Corps of Engineers as part of the Lake Francis Case project area. It is also possible a small area extends onto private land.

Description: The site area is oriented along the terrace, extending over 1100 meters NE-SW, but less than 200 meters NW-SE. The boundaries are defined by relating the surface evidence of occupation (features and artifacts scatters) to the natural features present (lake, drainages) and a distinct artificial feature, an abandoned highway. Where distinct natural or artificial features closely relate to the boundary of the cultural material, these are used as boundary lines. When no such boundaries exist, the actual limits of cultural material form the boundary. As defined the site covers approximately 165 acres (Winham 1987: Figure 19).

The site has features relating to at least three components - two historic components and one prehistoric component. The most recent features include the abandoned highway and access roads to Jewell Ranch and some of the poured concrete foundations assumed to relate to that ranch. Other debris from barns and corrals is also scattered about.

The other historic component is the 19th century Dakota occupation, as revealed by the excavations in 1953 of two depressions (Smith 1953; Grange 1953), and as confirmed by more recent analyses of the artifacts recovered from those excavations (Logan 1978; Lees 1985). Two other depressions lie in the vicinity of the two depressions excavated in 1953. These are assumed to be historic also, but are not yet confirmed as such. An isolated keyhole-type depression lies some 400 meters to the northeast, and a circular depression, apparently also historic, lies about 200 meters to the southwest.

Representation in Existing Surveys - Site 39LM39

Title: Report on the Results of Site Testing to Determine National Register Eligibility for Sites 39GR32, 39GR53, 39LM33 and 39LM39, in the Lake Francis Case Area, South Dakota (by R. Peter Winham with contributions by L. Adrien Hannus, Loren Horton, Joseph Tiffany and Frederick Westin). Archeology Laboratory of the Center for Western Studies, Augustana College, Sioux Falls, South Dakota.
Date: 1987 Federal (Contract No. DACW45-86-M-1517)
Depository for survey records:
U.S. Army Corps of Engineers, Omaha District, Omaha, Nebraska

Title: Cultural Resource Reconnaissance Along the Lower West Bank of Lake Francis Case in Gregory and Lyman Counties, South Dakota. (by William B. Lees, Marie E. Brown and Rolfe D. Mandel). Museum of Anthropology, University of Kansas, Lawrence.
Date: 1985 Federal (Contract No. DACW45-83-C-0236)
Depository for survey records:
U.S. Army Corps of Engineers, Omaha District, Omaha, Nebraska

Title: Field Notes, University of Kansas archeological expedition, June 10-22, 1953 (by R.T. Grange, Jr.).
Date: 1953 Federal
Depository for survey records:
Ms. on file, Museum of Anthropology, University of Kansas, Lawrence, Kansas.

Title: Miscellaneous field notes, feature forms and catalog sheets, 1953 University of Kansas field expedition to 39LM39 (by C.S. Smith).
Date: 1953 Federal
Depository for survey records:
Ms. on file, Museum of Anthropology, University of Kansas, Lawrence, Kansas.

DESCRIPTION (cont.)

Cultural material associated with the historic components is scattered over the entire site area, but does show concentrations in relation to the depressions. None of the depressions or other earthworks at the site have been shown to relate to the prehistoric occupation. However, the 1986 evaluation located several hearths and pits eroding from the cutbank in an area of dense prehistoric cultural material at the south end of the overall site area. Another dense scatter was observed on the beach north of this area, and several smaller scatters around small knolls inland to the west and southwest. As with the historic material, the prehistoric material also exhibits a general presence over the entire site.

The site as a whole has seen a variety of alterations and adverse effects. Later occupations have impacted the earlier components, while the formation of Lake Francis Case has eroded away an unknown portion of the site, and continues to be the major adverse effect on this site.

Archeological activity has been limited generally to surveys and small test units. The exception is the 1953 excavations of what were thought to be earthlodges, but which were found to be 19th century dwellings (Winham 1987: Figures 6, 7 and 15).

8. Significance

Period	Areas of Significance—Check and justify below				
X prehistoric	X archeology-prehistoric	community planning	landscape architecture	religion	
___ 1400–1499	X archeology-historic	conservation	law	science	
X 1500–1599	___ agriculture	economics	literature	sculpture	
X 1600–1699	___ architecture	education	military	social/	
___ 1700–1799	___ art	engineering	music	humanitarian	
X 1800–1899	___ commerce	exploration/settlement	philosophy	___ theater	
X 1900–1920	___ communications	industry	politics/government	___ transportation	
		invention		___ other (specify)	

Specific dates **Builder/Architect**

Statement of Significance (in one paragraph)

Dating: A single radiocarbon date of 690 ± 140 B.P. from a combined sample from two hearths exposed in the cutbank in 1986 is viewed as an anomaly, being much too early to relate to the Extended Coalescent occupation. The evidence to support the Extended Coalescent affiliation comes from the ceramics at the site. To date, no ceramics other than Extended Coalescent types have been recovered from this site.

Significance: The Deerfly site (39LM39) is a multi-component site at which two components are considered significant - the 19th century Dakota occupation and the prehistoric Extended Coalescent occupation. In all probability, remains of these two components are sufficient to address a number of important questions about both the site specific occupation (when occupied, for how long, what activities took place, can the 19th century acculturation process at the Deerfly site, as discussed by Lees (1985), be further validated or will an examination of areas around the dwellings, and other dwellings, show the process to be different/more complex) and the regional settlement patterns and processes (how does the Extended Coalescent occupation compare with the nearby Spain and Clarkstown Extended Coalescent components, just how significant is the 19th century occupation at the Deerfly site regionally). Specific occupation areas are defined for both components, and preservation of information in features such as depressions, pits and hearths would be expected to provide data on both the material culture and the environmental circumstance. Finally, the significance of the Missouri River in the Plains Village and more recent periods cannot be overstressed. With the creation of the reservoirs along the Missouri River destroying much of this archeological record, all sites still preserved near the Missouri Trench take on an added significance as the last of a resource base with which to understand culture processes in the Middle Missouri subarea of the Plains.

9. Major Bibliographical References

SEE CONTINUATION SHEET

10. Geographical Data

Acreage of nominated property 165

Quadrangle name IONA NW **Quadrangle scale** 1:24,000

UTM References

	Zone	Easting	Northing		Zone	Easting	Northing
A	14	461690	4837630	B	14	461840	4837840
C	14	462010	4837920	D	14	462180	4838170
E	14	462450	4838420	F	14	462530	4838310
G	14	461870	4837600	H			

Verbal boundary description and justification The site area approximates a rectangle oriented NE-SW. Lake Francis Case is the boundary to the east (G-F), the limit of cultural material/features dictating the other boundaries, using an abandoned highway (C-E) for a part of this. The site is situated between 1365' and 1400' amsl, 4 miles west and 8 miles south of Oacoma.

List all states and counties for properties overlapping state or county boundaries

state	code	county	code

11. Form Prepared By

name/title R. Peter Winham, Assistant Director

organization Archeology Lab, Center for Western Studies **date** November 10, 1986

street & number Augustana College **telephone** (605) 336-5493

city or town Sioux Falls **state** South Dakota

12. State Historic Preservation Officer Certification

The evaluated significance of this property within the state is:

___ national ___ state ___ local

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service.

State Historic Preservation Officer signature

title **date**

For NPS use only

I hereby certify that this property is included in the National Register

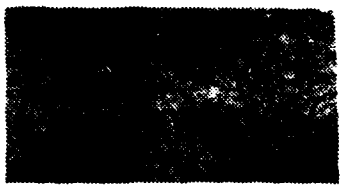
date

Keeper of the National Register

Attest: **date**

Chief of Registration

GPO 911-399



Major Bibliographic References

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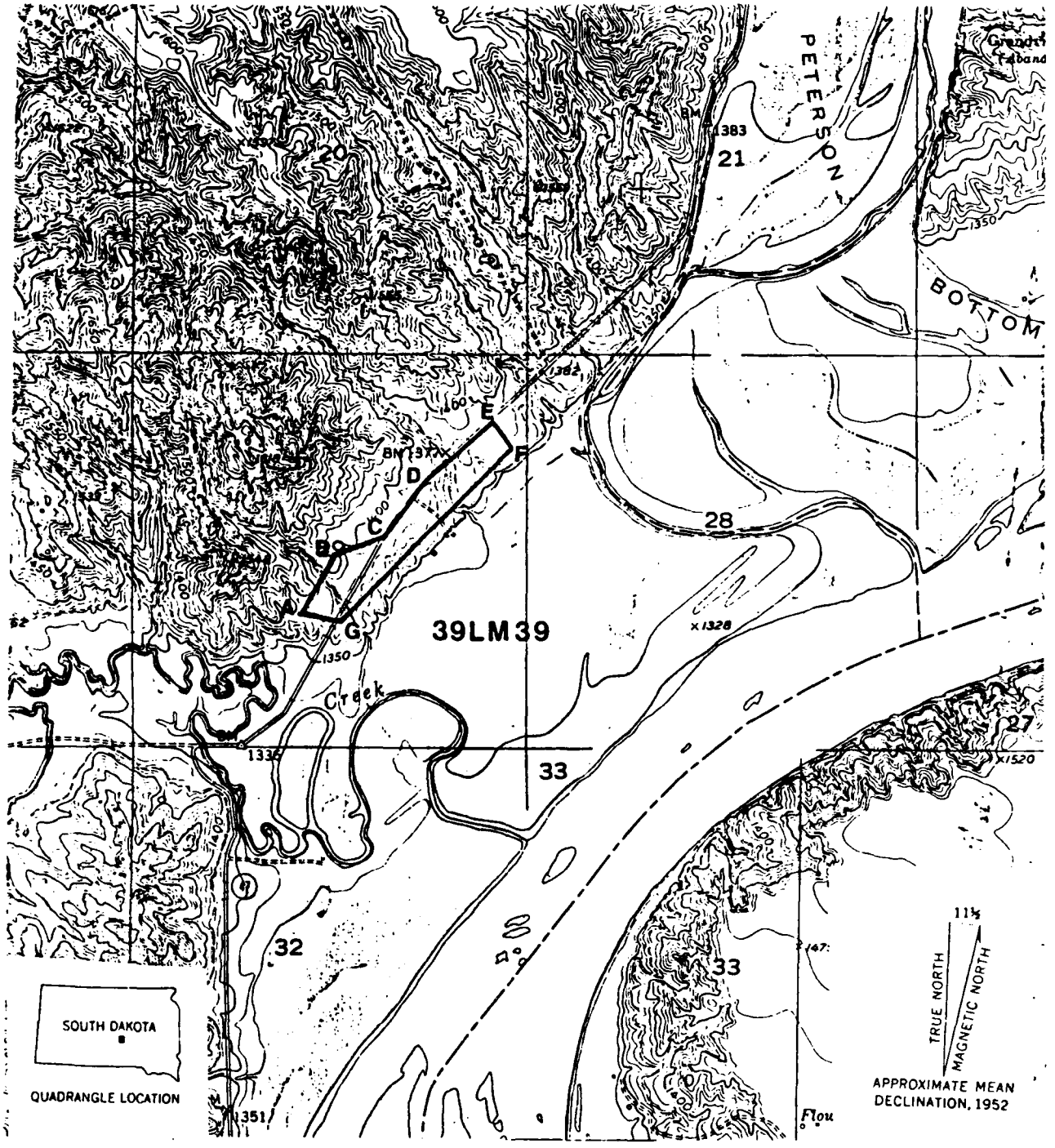


IONA NW, S. DAK.

NW/4 IONA 15' QUADRANGLE

N4337.5—W9922.5/7.5

1952

SCALE 1:24000

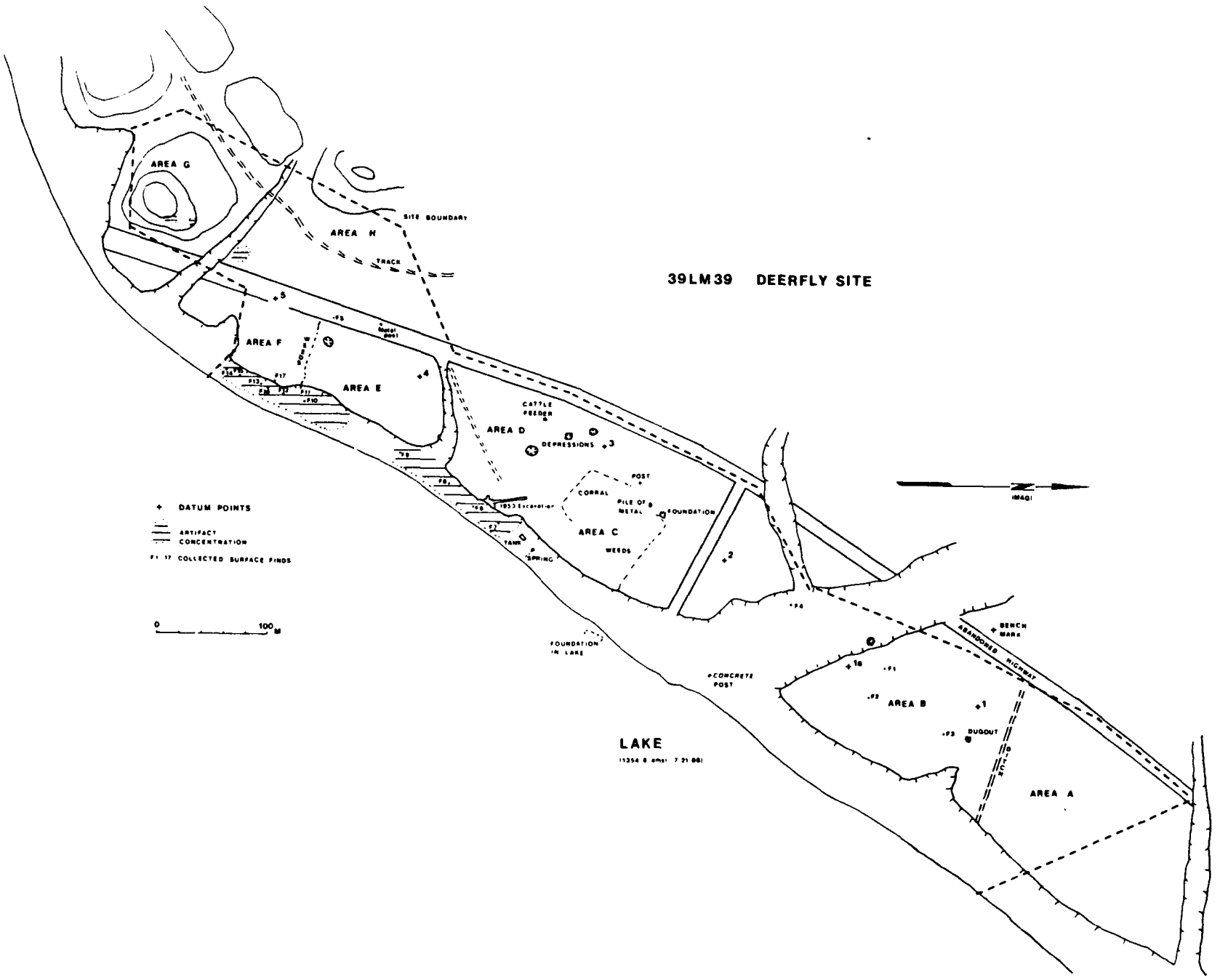
1 MILE

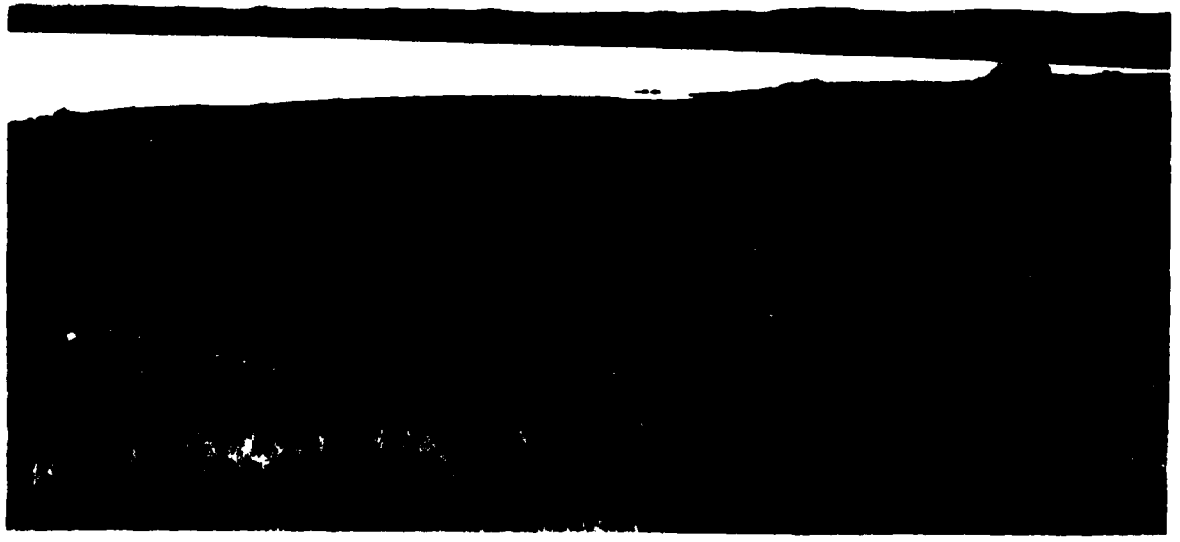
7000 FEET

1 KILOMETER

CONTOUR INTERVAL 10 FEET

DATUM IS MEAN SEA LEVEL

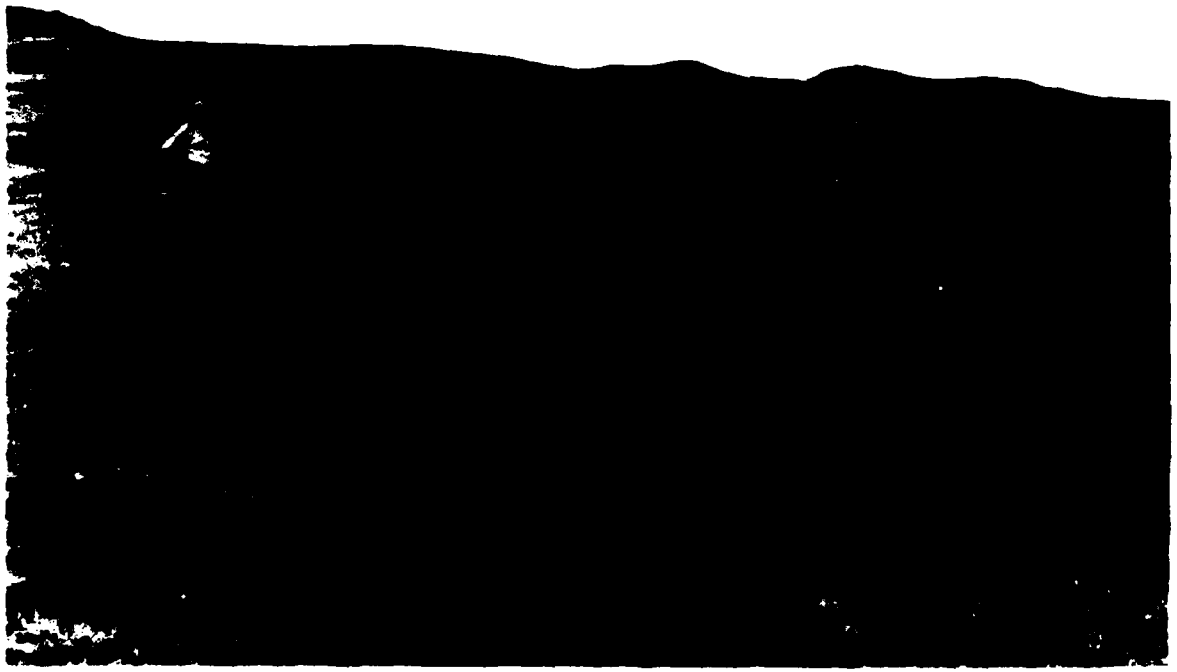

39LM39 DEERFLY SITE
AREA G
AREA H
SITE BOUNDARY
TRACK
AREA F
AREA E
AREA D
CATTLE FEEDER
DEPRESSIONS
CORRAL
POST
PILE OF METAL
FOUNDATION
AREA C
WEEDS
SPRING
TANK
1953 Excavation
FOUNDATION IN LAKE
CONCRETE POST
ABANDONED HIGHWAY
BENCH MARK
AREA B
DUGOUT
AREA A
LAKE
IMAGI
DATUM POINTS
ARTIFACT CONCENTRATION
F1 17 COLLECTED SURFACE FINDS
0
100 M



Deerfly Site (39LM39), view of area around the keyhole depression at the north end of the site, facing S.

Deerfly Site (39LM39), view from the southern end of the site, facing NE.

Deerfly Site (39LM39), depression nearest abandoned highway, possibly test trenched in 1953, facing S.



Deerfly Site (39LM39), central of three depressions in the middle of the overall site area, facing NW.

APPENDIX 4

Radiocarbon Date from Site 39LM39

TELEDYNE
ISOTOPES

50 VAN BUREN AVENUE

WESTWOOD, NEW JERSEY 07675

(201) 664-7070

TELEX 134474 TDYISOT WTWD

25 September 1986

Dr. L. Adrien Hannus, Director
Archeology Lab.
Center for Western Studies
Augustana College
2032 South Grange Avenue
Sioux Falls, SD 57105

Dear Dr. Hannus:

We have listed below the radiocarbon ages we have determined on the samples you submitted for analysis.

ISOTOPES Sample Number	Sample	$-\delta C^{14}$	Age in Years B.P.
I-14,633	39 LM 39	82 ± 16	690 ± 140
I-14,634	39 ST 214	72 ± 13	600 ± 120

We treated both samples for the removal of carbonates.

The Libby half-life of 5568 years was used to calculate the ages. The larger than normal uncertainty of measurement is due to the small amount of carbon we were able to extract from each sample.

I hope your presentation in Paris went well and that you found a little time for site-seeing

Best regards,

James Buckley
Radiocarbon Laboratory

JB:hp

enc.

APPENDIX 5

Photographic Logs

PHOTOGRAPHIC RECORD

ARCHEOLOGY LABORATORY, AUGUSTANA COLLEGE

PROJECT: SITE TESTING - LAKE FRANCIS CASE 1986

Color Slides ____ Roll No:
B/W Prints X Roll No: 1 (ALL SITE 39GR53)

DATE	PHOTOG'S INITIALS	EXPOSURE NO	SUBJECT	LOOKING TOWARD	NEGATIVE NUMBER
6-22-86	PW	1-2	Unloading backhoe		
		3-5	Backhoe excavating Trench #1, 39GR53	NW	
		6-11	SW-facing profile in Trench #1, 39GR53	NE	
		12-14	SW-facing profile, Trench #2; 39GR53	NE	
		15-17	Overview of 39GR53 testing; backhoe at Trench #3; truck by temporary datum	NNE	
		18-19	Backhoe at Trench #3, 39GR53	N	
		20-22	SW-facing profile at Trench #3, 39GR53	NE	

PHOTOGRAPHIC RECORD

ARCHEOLOGY LABORATORY, AUGUSTANA COLLEGE

PROJECT: SITE TESTING - LAKE FRANCIS CASE 1986

Color Slides ____ Roll No:
B/W Prints X Roll No: 2 (ALL SITE 39LM33)

DATE	PHOTOG'S INITIALS	EXPOSURE NO	SUBJECT	LOOKING TOWARD	NEGATIVE NUMBER
6-23-86	PW	0-4	Giddings Rig at Test #1	SE	
		5-7	Core from Test #3, in depression		
		8	Overview of Test #3 area		
		9-11	Core from Test #4		
		12	Dr. Westin with Core from Test #4		
		13-15	View of weeds/disturbed area and Tests #5 and 6	WSW	
		16-17	Core from Test #5		
		18-19	Dr. Westin with core at Test #9	S	
		20-21	Bone in cut bank, by trowel	WNW	
		22-24	View of cut bank with darker soil band and bone at 45cm bs, by trowel	WSW	

PHOTOGRAPHIC RECORD

ARCHEOLOGY LABORATORY, AUGUSTANA COLLEGE

PROJECT: SITE TESTING - LAKE FRANCIS CASE 1986

Color Slides ____ Roll No:
B/W Prints X Roll No: 3 (ALL SITE 39LM33)

DATE	PHOTOG'S INITIALS	EXPOSURE NO	SUBJECT	LOOKING TOWARD	NEGATIVE NUMBER
6-23-86	PW	1-3	Rim sherd in cut bank	NW	
		4-5	Close up of cache pit in cut bank	NE	
		6-8	General view of cache pit in cut bank	NW	
6-24-86	PW	9-10	Coring in progress	S	
		11-12	View across area excavated in 1954, to barn	WNW	
		13-14	Depression/Test #3 in foreground; Over's mound area and east site datum in back	E	
		15-16	Depression with Test #4, main datum and barn	WNW	
		17-18	Depression trenched in 1953 and 1953 Test trenches 2 & 6 in background	NNE	
		19-20	1953 tests in foreground and irrigation ditch and main datum	WSW	
		21	View across main datum and 1954 excavation area	SSW	
		22	View across site from main datum to "tub"	S	

PHOTOGRAPHIC RECORD

ARCHEOLOGY LABORATORY, AUGUSTANA COLLEGE

PROJECT: SITE TESTING - LAKE FRANCIS CASE 1986

Color Slides
B/W Prints X

Roll No:
Roll No: 3 (cont.) (ALL SITE 39LM33)

DATE	PHOTOG'S INITIALS	EXPOSURE NO	SUBJECT	LOOKING TOWARD	NEGATIVE NUMBER
6-24-86	PW	23-24	View across site from NW fence post	NE	
		24a	View across site from road with irrigation ditch on left	NE	

PHOTOGRAPHIC RECORD

ARCHEOLOGY LABORATORY, AUGUSTANA COLLEGE

PROJECT: SITE TESTING - LAKE FRANCIS CASE 1986

Color Slides ____ Roll No:
B/W Prints X Roll No: 4 (ALL SITE 39LM33)

DATE	PHOTOG'S INITIALS	EXPOSURE NO	SUBJECT	LOOKING TOWARD	NEGATIVE NUMBER
6-24-86	PW	1-3	View of cut bank, 39LM33	N	
		4-5	View of 39LM33	NE	
		6-7	View of 39LM33	NNE	
		8	View from fence on west side of road between house and shed	E	
		9-10	View of 39LM33	SE	
		11-12	View of ?trenched area, 1953 Test Trench #1	ENE	

PHOTOGRAPHIC RECORD

ARCHEOLOGY LABORATORY, AUGUSTANA COLLEGE

PROJECT: SITE TESTING - LAKE FRANCIS CASE 1986

Color Slides ____
B/W Prints X

Roll No:
Roll No: 5 (Exposures 0-23 SITE 39GR32;
Exposures24-35 SITE 39LM39)

DATE	PHOTOG'S INITIALS	EXPOSURE NO	SUBJECT	LOOKING TOWARD	NEGATIVE NUMBER
7-18-86	PF	0-1	South facing cut bank exposure	N	
		2-3	SE facing exposure to north of above exposure	N	
		4-5	East facing bank to north of above exposure	NW	
		6-7	N and W facing cut bank around point from above exposure	E	
		8-9	AS EXPOSURE 6-7		
		10-11	AS EXPOSURE 4-5		
		12-13	AS EXPOSURE 2-3		
		14-15	AS EXPOSURE 0-1		
7-19-86	PW	16-18	View to point where 39GR32 located from hill to SE	NE	
		19	Shovel test #1, 52cm bs		
		20	Shovel test #8, 45cm bs		

PHOTOGRAPHIC RECORD

ARCHEOLOGY LABORATORY, AUGUSTANA COLLEGE

PROJECT: SITE TESTING - LAKE FRANCIS CASE 1986

Color Slides ____ Roll No:
B/W Prints x Roll No: 5 (Exposures 21-23 39GR32;
Exposures 24-35 39LM39)

DATE	PHOTOG'S INITIALS	EXPOSURE NO	SUBJECT	LOOKING TOWARD	NEGATIVE NUMBER
7-20-86	PW	21	Shovel test #10, down to clay at base of sod		
		22	Shovel test #13, 35cm bs		
		23	Shovel test #15		
7-21-86	PF	24-25	39LM39 Keyhole depression	358° (N)	
		26-27	Keyhole depression	208° (SW)	
		28-29	Mapping Datum 1 area - Bench mark in center of frame	115° (E)	
		30-31	Overview of Datum 1 area	190° (S)	
		32-33	Overview of Datum 2 area	130° (SE)	
		34-35	Overview of Datum 2/Area C view bordering above photos	110° (ESE)	

PHOTOGRAPHIC RECORD

ARCHEOLOGY LABORATORY, AUGUSTANA COLLEGE

PROJECT: SITE TESTING - LAKE FRANCIS CASE 1986

Color Slides ____ Roll No:
B/W Prints X Roll No: 6 (ALL SITE 39LM39)

DATE	PHOTOG'S INITIALS	EXPOSURE NO	SUBJECT	LOOKING TOWARD	NEGATIVE NUMBER
7-22-86	KW	2-3	SAME AS Roll 5 #24-25		
		4-5	SAME AS Roll 5 #26-27		
		6-7	SAME AS Roll 5 #28-29		
		8-9	SAME AS Roll 5 #30-31		
		10-11	SAME AS Roll 5 #32-33		
		12-13	SAME AS Roll 5 # 34-35		
		14-15	Collapsed bridge, Area C	300° (NW)	
		16-17	Old cistern/windmill, Area C.	SE	
		18-19	Concrete piling? in water	E	
		20-21	Concrete foundation in water	S	
		22-23	Flowing spring	130° (SE)	

PHOTOGRAPHIC RECORD

ARCHEOLOGY LABORATORY, AUGUSTANA COLLEGE

PROJECT: SITE TESTING - LAKE FRANCIS CASE 1986

Color Slides ____ Roll No:
B/W Prints X Roll No: 6 (cont.) (ALL 39LM39)

DATE	PHOTOG'S INITIALS	EXPOSURE NO	SUBJECT	LOOKING TOWARD	NEGATIVE NUMBER
7-22-86	KW	24-25	Concrete stock water tank 10m west of spring	240° (W)	

PHOTOGRAPHIC RECORD

ARCHEOLOGY LABORATORY, AUGUSTANA COLLEGE

PROJECT: SITE TESTING - LAKE FRANCIS CASE 1986

Color Slides ____ Roll No:
B/W Prints X Roll No: 7 (ALL SITE 39LM39)

DATE	PHOTOG'S INITIALS	EXPOSURE NO	SUBJECT	LOOKING TOWARD	NEGATIVE NUMBER
7-22-86	KW	1-2	Area D, Datum 3	140° (SE)	
		3-4	Area D, Datum 3	120° (SE)	
		5-6	Depression nearest old road Area D	200° (S)	
		7-8	As above	310° (NW)	
		9-10	Middle of three depressions Area D	340° (NW)	
		11-12	Depression/Old 1953 Feature 3 excavation, Area D	130° (SE)	
		13-14	1953 Feature 1 Excavation	180° (S)	
		15-16	39LM39, Hearth (Feature 6) in cut bank	W	
		17-18	Hearth (Feature 6)	W	
		19-20	39LM39, Feature 5	W	
		21-22	39LM39, Feature 4	W	

PHOTOGRAPHIC RECORD

ARCHEOLOGY LABORATORY, AUGUSTANA COLLEGE

PROJECT: SITE TESTING - LAKE FRANCIS CASE 1986

Color Slides ____ Roll No:
B/W Prints X Roll No: 7 (cont.) (ALL SITE 39LM39)

DATE	PHOTOG'S INITIALS	EXPOSURE NO	SUBJECT	LOOKING TOWARD	NEGATIVE NUMBER
7-22-86	KW	23-24	39LM39, Feature 3	W	
		25-26	39LM39, Feature 2	W	
		27-28	39LM39, Feature 1	W	
7-22-86	PW	29-30	View of Area G	240°	
		31-32	View of Areas E, F and G	47° (NE)	
		33-34	Area G with Area H beyond drainage	342° (NW)	
		35-36	View of Area G back towards feeder	N	

PHOTOGRAPHIC RECORD

ARCHEOLOGY LABORATORY, AUGUSTANA COLLEGE

PROJECT: SITE TESTING - LAKE FRANCIS CASE 1986

Color Slides ____ Roll No:
B/W Prints X Roll No: 8 (ALL SITE 39LM39)

DATE	PHOTOG'S INITIALS	EXPOSURE NO	SUBJECT	LOOKING TOWARD	NEGATIVE NUMBER
7-22-86	PW	2	Depression in Area E	106° (E)	
		3-4	View of Area H	W	
		5-6	Excavation Unit 1, over Feature 6/Hearth 1	292°	
		7-8	Excavation Unit 1 before excavation of Hearth 1		
		9-10	Excavation Unit 1 after excavation of Hearth 1		
		11-12	Excavation Unit 1, Hearth 2 (ash lens below Hearth 1), and Hearth 3 (in profile)		

PHOTOGRAPHIC RECORD

ARCHEOLOGY LABORATORY, AUGUSTANA COLLEGE

PROJECT: SITE TESTING - LAKE FRANCIS CASE 1986

Color Slides X — Roll No: 1 (Exposures 1-20 39GR53;
B/W Prints ____ — Roll No: Exposures 21-30 39LM33)

DATE	PHOTOG'S INITIALS	EXPOSURE NO	SUBJECT	LOOKING TOWARD	NEGATIVE NUMBER
6-22-86	PW	1-5	Offloading backhoe		
		6-9	Backhoe trenching - Trench 1		
		10-13	SW facing profile, Trench 1	NE	
		14-15	SW facing profile, Trench 2	NE	
		16-18	Site overview; backhoe at trench 3; truck at temp. datum	NNE	
		19-20	SW facing profile, Trench 3	NE	
6-23-86	PW	21-23	Giddings Rig at Test#1 39LM33	SE	
		24-26	Core from Test #3		
		27	General view of Test#3 area		
		28-29	Core from Test #4		
		30	View of weeds/disturbed area site of 1954 excavation	WSW	

PHOTOGRAPHIC RECORD

ARCHEOLOGY LABORATORY, AUGUSTANA COLLEGE

PROJECT: SITE TESTING - LAKE FRANCIS CASE 1986

Color Slides X Roll No: 2 (ALL SITE 39LM33)
B/W Prints Roll No:

DATE	PHOTOG'S INITIALS	EXPOSURE NO	SUBJECT	LOOKING TOWARD	NEGATIVE NUMBER
6-23-86	PW	1-4	Core and coring at Test #9	S	
		5-6	SAME AS B/w Roll 2, #20		
		7	SAME AS B/w Roll 2, #22		
		8-9	SAME AS B/w Roll 3, #1		
		10-11	SAME AS B/w Roll 3, #4		
		12-13	SAME AS B/w Roll 3, #6		
		14-15	SAME AS B/w Roll 3, #9		
		16	SAME AS B/w Roll 3, #11		
		17-18	SAME AS B/w Roll 3, #13		
		19-20	SAME AS B/w Roll 3, #15		
		21-22	SAME AS B/w Roll 3, #17		

PHOTOGRAPHIC RECORD

ARCHEOLOGY LABORATORY, AUGUSTANA COLLEGE

PROJECT: SITE TESTING - LAKE FRANCIS CASE 1986

Color Slides X
B/W Prints

Roll No: 2 (cont.) (ALL SITE 39LM33)
Roll No:

DATE	PHOTOG'S INITIALS	EXPOSURE NO	SUBJECT	LOOKING TOWARD	NEGATIVE NUMBER
6-23-86	PW	23-24	SAME AS B/w Roll 3, #19		
		25	SAME AS B/w Roll 3, #22		
		26-27	SAME AS B/w Roll 3, #23		
		28	SAME AS B/w Roll 3, #24a		
		29	SAME AS B/w Roll 4, #6		
		30-32	Loading Giddings Rig at 39LM33		
		33-35	SAME AS B/w Roll 4, #1		
		36-37	SAME AS B/w Roll 4, #9		

PHOTOGRAPHIC RECORD

ARCHEOLOGY LABORATORY, AUGUSTANA COLLEGE

PROJECT: SITE TESTING - LAKE FRANCIS CASE 1986

Color Slides X
B/W Prints ____

Roll No: 3 (Exposures 1-16, 39GR32;
Roll No: Exposures 17-32, 39LM39)

DATE	PHOTOG'S INITIALS	EXPOSURE NO	SUBJECT	LOOKING TOWARD	NEGATIVE NUMBER
7-18-86	PF	1	SAME AS B/w Roll 5, #0		
		2	SAME AS B/w Roll 5, #2		
		3	SAME AS B/w Roll 5, #4		
		4	SAME AS B/w Roll 5, #6		
		5	SAME AS B/w Roll 5, #7		
		6	SAME AS B/w Roll 5, #5		
		7	SAME AS B/w Roll 5, #3		
		8-9	SAME AS B/w Roll 5, #1		
		10	Area tested at 39GR32, on point	N	
		11	Area tested on point, 39GR32, PW and MR	N	
7-19-86	PW	12	SAME AS B/w Roll 5, #19		

PHOTOGRAPHIC RECORD

ARCHEOLOGY LABORATORY, AUGUSTANA COLLEGE

PROJECT: SITE TESTING - LAKE FRANCIS CASE 1986

Color Slides X
B/W Prints ____

Roll No: 3 (cont.) (Exposures 13-16, 39GR32;
Roll No: Exposures 17-32, 39LM39)

DATE	PHOTOG'S INITIALS	EXPOSURE NO	SUBJECT	LOOKING TOWARD	NEGATIVE NUMBER
7-19-86	PW	13	SAME AS B/w Roll 5, #20		
		14	SAME AS B/w Roll 5, #21		
		15	SAME AS B/w Roll 5, #22		
		16	SAME AS B/w Roll 5, #23		
7-21-86	PF	17	SAME AS B/w Roll 5, #24 39LM39		
		18	SAME AS B/w Roll 5, #26		
		19	SAME AS B/w Roll 5, #28		
		20	SAME AS B/w Roll 5, #30		
		21	SAME AS B/w Roll 5, #32		
		22	SAME AS B/w Roll 5, #34		
		23	Collapsed bridge for old road NW of Datum 2	300° (NW)	

PHOTOGRAPHIC RECORD

ARCHEOLOGY LABORATORY, AUGUSTANA COLLEGE

PROJECT: SITE TESTING - LAKE FRANCIS CASE 1986

Color Slides X
B/W Prints

Roll No: 3 (cont.) (Exposures 24-32, 39LM39)
Roll No:

DATE	PHOTOG'S INITIALS	EXPOSURE NO	SUBJECT	LOOKING TOWARD	NEGATIVE NUMBER
7-21-86	PF	24	Old cistern/windmill, Area C	128° (SE)	
		25	Concrete piling in water	95° (E)	
		26	Foundation in water	180° (S)	
		27	Flowing spring on beach	130°	
		28	Concrete stock tank near spring	240°	
		29	Datum 3 area (Area D)	140° (NE)	
		30	Area D, Datum 3	120°	
		31	Depression nearest road, Area D	200° (S)	
		32	Same depression as above	310° (NW)	

PHOTOGRAPHIC RECORD

ARCHEOLOGY LABORATORY, AUGUSTANA COLLEGE

PROJECT: SITE TESTING - LAKE FRANCIS CASE 1986

Color Slides X
B/W Prints

Roll No: 4 (ALL SITE 39LM39)
Roll No:

DATE	PHOTOG'S INITIALS	EXPOSURE NO	SUBJECT	LOOKING TOWARD	NEGATIVE NUMBER
7-21-86	KW	1	SAME AS Color Roll 3, #17		
		2	SAME AS Color Roll 3, #18		
		3	SAME AS Color Roll 3, #19		
		4	SAME AS Color Roll 3, #20		
		5	SAME AS Color Roll 3, #21		
		6	SAME AS Color Roll 3, #22		
		7	SAME AS Color Roll 3, #23		
		8	SAME AS Color Roll 3, #24		
		9	SAME AS Color Roll 3, #25		
		10	SAME AS Color Roll 3, #26		
		11	SAME AS Color Roll 3, #27		

PHOTOGRAPHIC RECORD

ARCHEOLOGY LABORATORY, AUGUSTANA COLLEGE

PROJECT: SITE TESTING - LAKE FRANCIS CASE 1986

Color Slides X
B/W Prints

Roll No: 4 (cont.) (ALL SITE 39LM39)
Roll No:

DATE	PHOTOG'S INITIALS	EXPOSURE NO	SUBJECT	LOOKING TOWARD	NEGATIVE NUMBER
7-21-86	KW	12	SAME AS Color Roll 3, #28		
		13	SAME AS Color Roll 3, #29		
		14	SAME AS Color Roll 3, #30		
		15	SAME AS Color Roll 3, #31		
		16	SAME AS Color Roll 3, #32		
7-21-86	PF	17	Middle of three depressions in Area D	340° (NW)	
		18	Depression marking probable site of 1953 Feature 3 excavation	130° (SE)	
		19	1953 Feature 1 excavation	174° (S)	
		20	Feature 6	W	
		21	Feature 6	W	
		22	Feature 5	W	

PHOTOGRAPHIC RECORD

ARCHEOLOGY LABORATORY, AUGUSTANA COLLEGE

PROJECT: SITE TESTING - LAKE FRANCIS CASE 1986

Color Slides X
B/W Prints ____

Roll No: 4 (cont.) (ALL SITE 39LM39)
Roll No:

DATE	PHOTOG'S INITIALS	EXPOSURE NO	SUBJECT	LOOKING TOWARD	NEGATIVE NUMBER
7-22-86	KW	23	Feature 4	W	
		24	Feature 3	W	
		25	Feature 2	W	
		26	Feature 1	W	
7-22-86	PW	27	View of Area G	240° (SW)	
		28	View of Areas E, F and G	47° (NE)	
		29	Overview of Area G	342° (NW)	
		30	Depression in Area E	106° (E)	
		31	View of Area H	W	
		32	Excavation Unit 1	292° (NW)	

PHOTOGRAPHIC RECORD

ARCHEOLOGY LABORATORY, AUGUSTANA COLLEGE

PROJECT: SITE TESTING - LAKE FRANCIS CASE 1986

Color Slides X
B/W Prints

Roll No: 5 (ALL SITE 39LM39)
Roll No:

DATE	PHOTOG'S INITIALS	EXPOSURE NO	SUBJECT	LOOKING TOWARD	NEGATIVE NUMBER
7-22-86	PW	1	Excavation Unit 1, Hearth 1 before excavation		
		2	SAME AS 1 ABOVE		
		3	Excavation Unit 1, Hearth 1 after excavation		
		4	SAME AS 3 ABOVE		
		5	Excavation Unit 1, Hearth 2 (plan) and Hearth 3 (profile)		
		6	SAME AS 5 ABOVE		

APPENDIX 6

Artifact Catalog Sheets

FIELD CATALOG SHEET

Archeology Laboratory of the
Center for Western Studies

County: LYMAN
Site No: 39LM33
Accession No: 86-0225

CATALOG NO	DESCRIPTION	LOCATION	DEPTH	DATE	COMMENTS
1-2	Great Oasis-like Wedge Lip rimsherds (fit together)	Plot B		6-24-86	Cutbank
3-5	Bodysherds	Plot C		6-24-86	Cutbank
6	Primary flake, chalcedony 1.1g	Test 3	40-60cm	6-23-86	Depression
7	Bodysherd	"	"	"	"
8	Charcoal	"	80-100	"	"
9	Tertiary flake, Bijou Hills quartzite 0.05g	"	"	"	"
10	Bone fragments (7 - 1.7g)	"	"	"	"
11-12	Bodysherds	"	100-120	"	"
13	Small bone fragment	"	"	"	"
14	Small burned bone fragment (#13 and 14 weigh 0.6g)	"	"	"	"
15	Bone fragment	"	120-140	"	"
16	Small bone fragments (11), some burned (#15 and 16 weigh 3.0g)	"	"	"	"
17-18	Bodysherds	"	"	"	"
19-20	Foreman Cordmarked rimsherds (fit together)	"	140-155	"	"
21-27	Bodysherds	"	"	"	"
28	Shell fragment	"	"	"	"
29-36	Burned bone fragments	"	"	"	"
37-42	Bone fragments	"	"	"	"
43	Small bone fragments (17) (#29 - 43 weigh 12.7g)	"	"	"	"
44	Microflake 0.1g	"	155-165	"	"
45	Bone fragment	"	"	"	"
46	Discarded (limestone fragment)	"	"	"	"
47	Bone fragment 0.05g	"	"	"	"
48	Micro bone fragments (4 - 0.1g)	"	165-170	"	"
49	Bodysherd	"	170-180	"	"
50-53	Bone fragments 0.8g	"	"	"	"

FIELD CATALOG SHEET (cont.)

Archeology Laboratory of the
Center for Western Studies

County: LYMAN
Site No: 39LM33
Accession No: 86-0225

CATALOG NO	DESCRIPTION	LOCATION	DEPTH	DATE	COMMENTS
54-64	Bone fragments	"	180-190	"	"
65	Micro bone fragments (14) (#54-65 weigh 56.4g)	"	"	"	"
66	Charcoal fleck	Test 4	0-75cm	6-23-86	Change in profile at 75cm
67	Bodysherd	"	"	"	
68-73	Bone fragments (68-heavily burned)	"	"	"	
74	Micro bone fragment (#67-74 weigh 17.9g)	"	"	"	
75	Charcoal fleck	"	75-200	"	
76-77	Bodysherds	"	"	"	
78-79	Bone fragments (3 - 0.9g)	Test 9	0-50cm	6-23-86	
80	Charcoal	"	50-100	"	Charcoal at 90cm
81	Bone fragments (5 - 0.7g)	"	50-100	"	
82	Charcoal	Test 10	0-90cm	6-23-86	
83-85	Fire-cracked granite 54.7g	"	"	"	
86	Bodysherd	"	"	"	
87-90	Bone fragments	"	"	"	
91	Bone fragments (5) (#87-91 weigh 3.1g)	"	"	"	
92-93	Brown chalcedony tertiary flakes (0.5g)	"	"	"	
94-96	Fire-cracked granite 11.8g	Test 23	0-100cm	6-24-86	Collected from primary core
97	Bone fragments (4 - 0.3g)	Test 30	0-50cm	6-24-86	"
98	Primary flake, tabular light grey chalcedony 1.2g	"	"	"	
99-100	Split bodysherds	Test 32	0-50cm	6-24-86	"
101-105	Bone fragments - 2.9g	Test 33	0-60cm	"	"

FIELD CATALOG SHEET

Archeology Laboratory of the
Center for Western Studies

County: LYMAN
Site No: 39LM39
Accession No: 86-0245

CATALOG NO	DESCRIPTION	LOCATION	DEPTH	DATE	COMMENTS
1	Cartridge case	Find #1, Area B	Surface	7-20-86	
2	Barbed wire	Find #2, Area B	"	"	
3	Retouched glass fragment	Find #3, Area B	"	"	
4	Ceramic sherd (corner)	Find #4, Area C	"	"	
5	Opaque chalcedony transverse scraper, 30.12x14.01x6.10mm - 4.5g	Find #5, In road	"	7-22-86	
6	Ceramic bodysherd	Find #6, Area D	"	"	
7	Ceramic rimsherd, herringbone lip decoration, plain rim, possibly S-shaped [Iona S-rim?]	Find #6, Area D	"	"	
8	Plate chalcedony Badlands knife, 61.18x40.29x8.11mm - 29.7g	Find #7, Area D	"	"	
9	Ceramic rimsherd, curved rim, indented lip, horizontally incised rim	Find #8, Area D	"	"	
10	Bijou Hills quartzite scraper produced on heavy unifacial flake, 62.26x43.12x12.52mm - 52.3g	Find #9, Area E	"	"	
11	Ceramic bodysherd	Find #10, Area E	"	"	
12	Ceramic rimsherd, diagonally impressed lip, seven horizontally incised lines on rim [Grey Cloud Horizontally Incised?]	Find #11, Area E	"	"	
13	Ceramic rimsherd, slight water abrasion. Simple curved rim, plain lip with one node, rim smoothed	Find #12, Area F	"	"	
14	Ceramic rimsherd, indented slightly thickened lip, irregular straight plain (?) rim	"	"	"	

FIELD CATALOG SHEET (cont.)

Archeology Laboratory of the
Center for Western Studies

County: LYMAN
Site No: 39LM39
Accession No: 86-0245

CATALOG NO	DESCRIPTION	LOCATION	DEPTH	DATE	COMMENTS
15	Antler (modified). Tip of antler tine (deer) cut from section by circular grooving. 44.38mm long by 13.33mm thick - 3.5g	"	"	"	
16	Ceramic rimsherd, everted, straight sided plain rim, interior beveled lip with impressions	Find #13, Area F	"	"	
17	Square cut nail	Find #14, Area F	"	"	
18	Ceramic rimsherd, missing rim edge, diagonally incised lip, vertically incised rim, slightly curved, from bowl?	Find #15, Area F	"	"	
19	Ceramic rimsherd, waterworn, plain(?) straight rim markedly thinned at lip, lip indented	Find #16, Area F	"	"	
20	Canine tooth - 1.6g	Find #17, Area F	"	"	Cutbank, above Feature 4
21	Ceramic bodysherd fragments (2)	Core #1, Area F	0-20cm	7-22-86	
22	Six bone fragments	"	20-30	"	
23	Two bone fragments	Core #2, Area F	0-25cm	7-22-86	
24	Two bone fragments	Core #3, Area F	0-20cm	7-22-86	
25	Two ceramic bodysherd fragments	"	20-40	"	
26	32 metal fragments	Core #4, Area E	35-40cm	7-22-86	
27	Micro bone, ceramic and lithics	Feature 4, Sample 4		7-22-86	From flotation
28	Roots and charcoal	"		"	"
29	Micro bone and ceramic fragments	Feature 2, Sample 5		"	From flotation

FIELD CATALOG SHEET (cont.)

Archeology Laboratory of the
Center for Western Studies

County: LYMAN
Site No: 39LM39
Accession No: 86-0245

CATALOG NO	DESCRIPTION	LOCATION	DEPTH	DATE	COMMENTS
H-1-1	White quartz fragment, heated 13.3g	Ash layer of Hearth #1 (C14 sample)		7-22-86	XU1, Feature 6
H-1-2	Tertiary flake, translucent quartz 0.6g	"		"	"
H-1-3	Tertiary flake, translucent chalcedony	"		"	"
H-1-4	Bone fragment	"		"	"
H-1-5	Burned bone fragment (#H-1-4 and H-1-5 weigh 2.2g)	"		"	"
H-1-6	Ceramic bodysherd	"		"	"
H-1-7	Bone fragment	Red layer of Hearth #1		7-22-86	"
H-1-8	"	"		"	"
H-1-9	"	"		"	"
H-1-10	" (H-1-7 to H-1-10 weigh 3.2g)	"		"	"
H-1-11	Ceramic bodysherd	"		"	"
H-1-12	Decorated bodysherd	"		"	"
H-1-13	Tertiary shatter, white quartz 0.5g	"		"	"
H-1-14	Ceramic rimsherd, lip diagonally indented, rim straight with T-shaped lip [Hosterman-like Vertical Rim]	Base of Hearth #1		7-22-86	"
H-1-15	Decorated bodysherd	"		"	"
H-1-16	Ceramic bodysherd	"		"	"
H-1-17	Split bodysherd	"		"	"
H-1-18	Ceramic bodysherd	"		"	"
H-1-19	"	"		"	"
H-1-20	"	"		"	"
H-1-21	Tertiary flake, opaque grey chalcedony - 0.3g	Base of Hearth #1		7-22-86	XU1, Feature 6
H-1-22	Ceramic bodysherd	Clean up layer around Hearth #1		"	"

FIELD CATALOG SHEET (cont.)

Archeology Laboratory of the
Center for Western Studies

County: LYMAN
Site No: 39LM39
Accession No: 86-0245

CATALOG NO	DESCRIPTION	LOCATION	DEPTH	DATE	COMMENTS
H-1-23	"	"		"	"
H-1-24	"	"		"	"
H-1-25	Decorated bodysherd	"		"	"
H-1-26	Ceramic bodysherd	"		"	"
H-1-27	Split bodysherd	"		"	"
H-1-28	"	"		"	"
H-1-29	Bone fragment - 0.2g	"		"	"
H-1-30	Roots, charcoal, bone	Ash layer of Hearth #1 (C14 sample)		7-22-86	XU1, Feature 6, Sample 2 Flotation
H-1-31	Ceramics, lithics (0.3g), bone (0.9g)	"		"	"
H-1-32	Roots, charcoal	Red layer below Hearth #1		7-22-86	XU1, Feature 6, Sample 3 Flotation
H-1-33	Ceramic, bone (2.9g), pebble core (24.1g), other lithics (0.3g)	"		"	"
H-2-1	Bone fragment - 53.0g	Hearth #2		7-22-86	XU1
H-2-2	Ceramic bodysherd	Base of Hearth #2		"	"
H-2-3	"	"		"	"
H-2-4	"	"		"	"
H-2-5	"	"		"	"
H-2-6	Bone fragment - 2.0g	"		"	"
H-2-7	Tertiary flake, light/dark grey mottled chert - 1.9g	"		"	"

FIELD CATALOG SHEET (cont.)

Archeology Laboratory of the
Center for Western Studies

County: LYMAN
Site No: 39LM39
Accession No: 86-0245

CATALOG NO	DESCRIPTION	LOCATION	DEPTH	DATE	COMMENTS
1-1 to 1-41	Ceramic bodysherds	Level 1	0-7cm	7-22-86	XU1
1-42 to 1-52	Bone fragments - 11.6g	"	"	"	"
1-53	Bijou Hills quartzite tertiary flake with secondary unifacial flaking	"	"	"	"
1-54	Brown chalcedony cortical flake	"	"	"	"
1-55	Bijou Hills quartzite fragment	"	"	"	"
1-56	Brown chalcedony tertiary flake, with inclusions	"	"	"	"
1-57	Tertiary flake, cream/opaque chalcedony	"	"	"	"
1-58	Tertiary flake, lavender quartzite	"	"	"	"
1-59	Tertiary flake, tan/opaque chalcedony	"	"	"	"
1-60	Shatter, tabular white quartz	"	"	"	"
1-61	Cortical flake, translucent chalcedony	"	"	"	"
1-62	Bijou Hills quartzite tabular shatter	"	"	"	"
1-63 to 1-64	Tertiary flake, translucent quartz	"	"	"	"
1-65	Shatter, brown chalcedony with inclusions	"	"	"	"
1-66	Tertiary flake, brown chalcedony	"	"	"	"
1-67	Tertiary flake, opaque chalcedony	"	"	"	"
1-68	Tertiary flake, translucent chalcedony	"	"	"	"
1-69 to 1-71	Tertiary flakes, translucent to white quartz	"	"	"	"
1-72	Shatter, cream chalcedony	"	"	"	"
1-73 to 1-76	Tertiary reduction flakes, opaque to brown chalcedony	"	"	"	"

FIELD CATALOG SHEET (cont.)

Archeology Laboratory of the
Center for Western Studies

County: LYMAN
Site No: 39LM39
Accession No: 86-0245

CATALOG NO	DESCRIPTION	LOCATION	DEPTH	DATE	COMMENTS
1-77	Point tip, opaque chalcedony (#1-53 to 1-77 weigh 17.1g)	Level 1	0-7cm	7-22-86	XU1
1-78	Iron staple	"	"	"	"
1-79	22 caliber shell case	"	"	"	"
1-80	Tooth enamel	"	"	"	"
1-81	Ceramic rimsherd, straight everted rim, deep tool impressions on the interior of the lip and exterior of the lip/upper rim. Shallow smoothed (?) vertical trailing(?) on the lower rim. Like Hosterman Incised Rim	"	"	"	"
2-1	Ceramic rimsherd, straight rim. Faint vertical trailing on rim, lip thickened towards exterior, herringbone impressions on lip [Hosterman-like Vertical Rim]	Level 2	7-12cm	7-22-86	"
2-2	Ceramic rimsherd (As 2-1)	"	"	"	"
2-3	Ceramic bodysherd	"	"	"	"
2-4 to 2-32	Ceramic bodysherds	"	"	"	"
2-33	Drill tip, brown chalcedony	"	"	"	"
2-34	Tertiary reduction flake, opaque chalcedony	"	"	"	"
2-35	Tertiary reduction flake, light grey chert	"	"	"	"
2-36	Tertiary reduction flake, yellow chert	"	"	"	"
2-37 to 2-39	White to translucent quartz reduction shatter	"	"	"	"
2-40	Tertiary reduction flake, translucent chalcedony (#2-33 to 2-40 weigh 22.5g)	"	"	"	"

FIELD CATALOG SHEET (cont.)

Archeology Laboratory of the
Center for Western Studies

County: LYMAN
Site No: 39LM39
Accession No: 86-0245

CATALOG NO	DESCRIPTION	LOCATION	DEPTH	DATE	COMMENTS
2-41 to 2-47	Bone fragments	"	"	"	"
2-48	Burned bone fragment	"	"	"	"
2-49 to 2-53	Bone fragments	"	"	"	"
2-54 to 2-55	Burned bone fragments	"	"	"	"
2-56 to 2-57	Bone fragments	"	"	"	"
2-58 to 2-60	Burned bone fragments	"	"	"	"
2-61 to 2-65	Bone fragments	"	"	"	"
2-66	Burned bone fragment	"	"	"	"
2-67 to 2-70	Bone fragments	"	"	"	"
2-71	Antler fragment (#2-41 to 2-71 weigh 53.6g)	"	"	"	"
3-1	Charcoal	Level 3	12-20cm	7-22-86	"
3-2	Primary flake, crystal quartz	"	"	"	"
3-3	Secondary flake, crystal quartz	"	"	"	"
3-4	Secondary shatter, crystal quartz	"	"	"	"
3-5	Fire-cracked granite fragments - 4.5g	"	"	"	"
3-6	Tertiary flake, brown/black banded chert (incrustation in progress)	"	"	"	"
3-7	Secondary flake, yellowish-brown chalcedony (incrustation in progress) - retouched?	"	"	"	"
3-8	Secondary flake, yellowish-brown chalcedony (incrustation in progress) - retouched?	"	"	"	"
3-9	Secondary flake, pale red chalcedony, with inclusions (incrustation in progress)	"	"	"	"
3-10	Secondary flake, grey/brown chalcedony, with inclusions	"	"	"	"

FIELD CATALOG SHEET (cont.)

Archeology Laboratory of the
Center for Western Studies

County: LYMAN
Site No: 39LM39
Accession No: 86-0245

CATALOG NO	DESCRIPTION	LOCATION	DEPTH	DATE	COMMENTS
3-11	Tertiary flake, brown chalcedony, (incrustation - mineralized wood) retouched?	"	"	"	"
3-12	Primary reduction flake, yellowish-brown chert	"	"	"	"
3-13, 3-14	Burned bone fragments	"	"	"	"
3-15 to 3-28	Bone fragments (#3-13 to 3-28 weigh 18.4g)	"	"	"	"
3-29, 3-30	Split bodysherds	"	"	"	"
3-31 to 3-34	Decorated bodysherds	"	"	"	"
3-35, 3-36	Burned decorated bodysherds	"	"	"	"
3-37 to 3-39	Burned plain bodysherds	"	"	"	"
3-40 to 3-56	Plain bodysherds	"	"	"	"
3-57	Tertiary reduction flake, light brown chalcedony (#3-2 to 3-4, 3-6 to 3-12 and 3-57 weigh 48.9g)	"	"	"	"
4-1	Fire-cracked granite fragments - 146.2g	Level 4	20-25cm	7-22-86	XU1
4-2	Secondary flake, grey/brown petrified wood (heat-treated)	"	"	"	"
4-3	Tertiary flake, mottled tabular grey chert	"	"	"	"
4-4	Tertiary shatter, translucent quartz	"	"	"	"
4-5	Secondary reduction flake, light grey petrified wood	"	"	"	"
4-6	Shatter, light grey quartz	"	"	"	"
4-7	Shatter, red chert (heated?)	"	"	"	"
4-8	Tertiary flake, dark red jasper (#4-2 to 4-8 weigh 5.4g)	"	"	"	"

FIELD CATALOG SHEET (cont.)

Archeology Laboratory of the
Center for Western Studies

County: LYMAN
Site No: 39LM39
Accession No: 86-0245

CATALOG NO	DESCRIPTION	LOCATION	DEPTH	DATE	COMMENTS
4-9	Ceramic rimsherd, straight thin plain rim. Lip thickened due to diagonal impressions	"	"	"	"
4-10 to 4-28	Ceramic bodysherds	"	"	"	"
4-29 to 4-45	Bone fragments	"	"	"	"
4-46	Burned bone fragment (#4-29 t0 4-46 weigh 91.9g)	"	"	"	"

APPENDIX 7

Scope-of-Work

Scope of Work

Introduction

1. A cultural resource inventory has been completed for Lake Francis Case. The results of this research and earlier research in this area indicate that several sites may be eligible for the National Register of Historic Places. The Army Corps of Engineers, Omaha District, is soliciting study outlines for research that will establish the National Register Status of sites 39GR32, 39LM39, 39LM53, and 39LM33.

2. This cultural resources investigation shall be accomplished in accord with (1) the National Historic Preservation Act of 1966 (Public Law 89-665) as amended by Public Laws 91-243, 93-54, 94-422, and 94-458 and 96-515; (2) the Reservoir Salvage Act of 1960 (Public Law 86-523) as amended by Public Law 93-291; (3) the National Environmental Policy Act of 1969 (Public Law 91-190 as amended by Public Law 94-52); (4) Executive Order 11593 for the Protection and Enhancement of the Cultural Environment (13 May 1971, 36 CFR 8921); (5) the Advisory Council for Historic Preservation's "Procedures for the Protection of Historic and Cultural Properties" (36 CFR Chapter VIII, Part 800); the proposed 36 CFR Part 66; 36 CFR Part 60; and 36 CFR Part 63. The cultural resources investigation shall be conducted in a professional manner. Cultural resources are defined as any site, building, district, structure, object, data, or material significant in history, architecture, archeology, or culture.

Article I

1. The work will consist of (1) an exhaustive search of all background literature on the Lake Francis Case area and the sites delineated for testing; (2) field work of sufficient intensity to clearly establish the eligibility of each site to the National Register of Historic Places, this may include surface collection, shovel testing, core sampling, site maps, feature planviews, and soil profiles; (3) a detailed report that describes the results of the previous two steps and the resulting conclusions. The contractor shall complete the National Register forms, if the report recommends nomination; and (4) finally the contractor shall complete a journal article on his work.

II. RESEARCH ORIENTATION

The background research should be considered the starting point for all expected study of the project area. (1) This research should establish a broad evaluating framework, based on a set of regional concerns and a more particularistic framework, restricted to the study areas. (2) The goal should be to develop a set of preservation and research priorities for the project areas that consider such points as the interpretive and research potential of the sites and the possible educational value to the public, and the determination of significance. (3) The major goal of the field work is to gather sufficient data to determine the eligibility of the sites to the National Register. The field investigations should not be considered a means

of mitigating the site or gathering any more data than is necessary to meet this goal. Site mitigation and/or stabilization will be performed at some later date, based upon the data supplied by the report. (4) Geomorphological data must be considered an intergral part of the total analysis of the sites. Other forms of special analysis may be necessary, such as radiocarbon dating, pollen analysis, etc., and should be delineated in the study outline for each site, as possible. This program may be changed in the field, with consultation with the technical officer.

III. METHODOLOGY

a. The literature search shall include, but should not be limited to the following sources: published and unpublished reports, books, journals, theses, dissertations, manuscripts, and site records. Sources that should be checked are the National Park Service (Midwest Archeological Center), South Dakota Historical Society, local historical societies, and the South Dakota Archaeological Research Center. Other professionals and local informants should also be consulted. The reports of the cultural resource inventory should be considered the basic source of this report.

b. The minimum requirement for field work on each site is a controlled surface collection. A series of test excavation units shall be placed on the site to determine the site boundaries, integrity, and research potential of the site. The size, number, and type of excavation unit will be determined by the contractor. The contractor should include a suggested testing plan for each site under consideration in the study outline. The contractor may alter the testing program only after consultation with the technical officer. In addition, a map will be made of each site showing topographic information and where applicable, surface and subsurface artifact distributions. Up-to-date records should be kept on all phases of work. At least one wall of all test units should be profiled and photographed in color and black and white. Photographs, planview, map, etc., should all be carefully labeled and provided with the final report. If features are found, samples should be collected for flotation, pollen, and radiocarbon analysis. All features should be photographed and planviewed. Few features should be completely excavated since the aim of the research is to test, not to mitigate the subject sites. All material should be processed, catalogued, and curated in such a manner that they may be used if future mitigation is planned, or additional research is possible.

c. All material that is recovered will be processed and analyzed in such a manner that it provides answers to questions mentioned in Section II. Analysis of materials recovered from earlier research on the project area will be integrated with the present investigation.

d. Principal Investigator must be in field periodically to check on the progress of the work and to be available to advise or instruct the field crew should any problems develop.

e. The Government may send a representative to inspect the various phases of the operations and review project records without prior notification.

The Service Contract General Provisions Section 41, Service Contract Act of 1965, as amended, subparagraph (g) requires the contractor not to permit work under this contract in unsanitary or dangerous locations. Proper health and safety standards (29CFR1925) are to be followed for the duration of the contract. These standards are to be used in conjunction with the "U.S. Army Corps of Engineers Safety and Health Requirements Manual," (EM 385-1-1, April 1981). The contractor will use the above to control or report hazards and injuries associated with equipment usage, surveying and excavation methodologies. The contractor shall use these precautions to protect employees and members of the public from accidental injury and death.

IV. REPORT OF FINDINGS

The detailed project report shall include, but not necessarily be limited to: (1) an abstract; (2) an introduction; (3) the regional location; (4) an evaluation and discussion of previous work in the Lake Francis Case area and project area; (5) methodology; (6) discussion of all field work done; (7) analysis of cultural resources recovered during this phase and from previous work on the sites; (8) recommendation for further work on the sites; (9) recommendations concerning eligibility of these sites to the National Register of Historic Places; (10) a definitive summary with cited references; (11) appendices as necessary; and (12) completion of National Register Forms and Form DD1473, Report Documentation Page. The abstract shall be a brief synopsis of the report, restating recommendation and conclusions, limited to 150 words. The introduction should include any acknowledgments, description of any action planned by the Corps of Engineers in the area, study methods and nature of study. The regional location and environment of the area should be concisely discussed in terms of human occupation, potential environmental constraints, and resources that may have been important. A summary of previous archeological and historical research should be done for the area. A brief summary of the culture history of the region and the project area should be made in terms of what sites in the region and area have contributed to this knowledge. The report shall detail intra and inter-site distribution of artifacts and an estimate of regional distributional relationships thereof and how this knowledge has contributed to our interpretation of the site. The report will indicate the location where all archeological data and artifactual material are available for future study. Recommendations concerning additional work other than for nomination to the National Register must be stated in a clear, logical, and understandable manner so that they can be evaluated in terms of preservation and research potential and educational value. The report should be thorough in its treatment of the research, but the goal is not to duplicate work done in the earlier culture resource inventory report. It is not necessary to exhaustively cover material that was discussed in the inventory, but to concentrate on those areas that will offer specific insights on the research potential for each of the sites.

All references cited will be listed in standard American Antiquity style. Appendices shall include, but not be limited to: (1) survey forms; (2) topographic maps of sites; (3) maps of artifact distribution on the sites (where appropriate); (4) maps of overall site distribution; (5) site excavation forms from limited testing, maps, planviews, profiles, and photographs, and (6) a list and description of all collected artifacts and other materials and photographs or illustrations of diagnostic artifacts. The contractor shall submit a suitable article for submittal to a professional journal or popular publication on the results of the research. This article shall include the following information: name of sponsor, contract number, and brief description and nature of the contract. The article may focus on some facet of the research. The purpose of the article is to ensure a wider dissemination of the information derived from the study.

VI. DISPOSITION OF ORIGINAL RECORDS AND ARTIFACTS

All original records, maps, profiles, and photographic negatives are property of the U.S. Army Corps of Engineers, Omaha District, and will be relinquished to the Corps of Engineers, Omaha District, at the completion of the project. All artifacts, faunal material, or other collected material shall be processed, cataloged, and stored in containers plainly marked "Property of the U.S. Government, Corps of Engineers, Omaha District," and deposited at a public facility mutually agreed to by the contractor and the Government. This will be in the state in which the investigations are conducted. The archeological data and records must be maintained in a facility accessible to future researchers. Retrieval of these materials by the U.S. Army Corps of Engineers for their use is reserved.

VII. RIGHTS OF ENTRY

All project lands are owned by the Corps of Engineers, so that entry is not expected to be a problem. The Area Engineer should be contacted prior to entry and all work should be thoroughly coordinated with the contract administrator and Area Engineer. It is possible that the contractor may need to cross private land to reach project properties. It is the contractor's responsibility to request permission of the landowner for entry.

VIII. WORK SCHEDULE

The contractor is expected to pursue the study in a professional manner to meet the target dates set out below. Schedules of proposed expenditures and work will be submitted to the District. They will be used to check on the progress of the work and when to monitor the field and laboratory activities. The schedules are to be submitted with the study outline.

a. Eight (8) copies of the completed excavation report and copies of the National Register of Historic Places nomination forms, in draft form, shall

be submitted to the Omaha District Office. The drafts will be edited by the contractor for major spelling and grammatical errors prior to submittal to the District Office for review and comment. A draft of a proposed journal article will be submitted 30 days later for review and comment.

b. Copies of the draft report and nomination forms will be submitted 210 calendar days after the contractor is notified to proceed. The Government shall have a maximum of 45 calendar days to review and comment. The contractor shall have 60 calendar days to include the review comments into the final report and forms and submit the final original report and forms with all negatives, photographs, maps, charts, tables, and standard drawings to the Government. The text shall be of a quality suitable for reproduction.

c. The Government will reproduce the final report for distribution to appropriate state and Federal agencies per 33 CFR Part 305.18(e) and interested parties. The contractor will receive 25 copies for personal use.

d. In the event of controversy or court challenge of the report, the Principal Investigator responsible for the validity of the information in the report shall testify on behalf of the Government's support of the report findings.

IX. CONTRACTOR QUALIFICATIONS

The minimum professional qualifications for the Principal Investigator and key consultants are those given in 36 CFR Part 61.5, Professional Qualifications.

X. INSTITUTIONAL OR CORPORATION QUALIFICATIONS

The Contractor must provide, or demonstrate access to the following capabilities:

Adequate permanent field and laboratory equipment necessary to conduct operations defined in the scope of the work.

Adequate laboratory and office space and facilities for proper treatment, analysis, and storage of specimens and records likely to be obtained from the project. This does not necessarily include such specialized facilities as pollen, geochemical, or radiological laboratories, but does include facilities sufficient to properly preserve or stablize specimens for any subsequent specialized analysis.

XI. METHOD OF PAYMENT

Payment for services rendered will be made at the completion of the field work for 50 percent of the contract price. Upon receipt of the draft report by the Government, 25 percent of the contract price will be awarded. The remaining 25 percent will be paid when the Government accepts the final study report.

APPENDIX 8

Proposal/Research Design Submitted by ALCWS

STUDY OUTLINE TO PERFORM SITE TESTING TO DETERMINE NATIONAL REGISTER ELIGIBILITY FOR SITES 39GR32, 39GR53, 39LM33 and 39LM39 IN THE LAKE FRANCIS CASE AREA, SOUTH DAKOTA

REQUEST NO. RFQ-86-0090

Submitted to

U.S. ARMY CORPS OF ENGINEERS
OMAHA, NEBRASKA

FEBRUARY 12, 1986

by

ARCHEOLOGY LABORATORY OF THE CENTER FOR WESTERN STUDIES,
AUGUSTANA COLLEGE, SIOUX FALLS, SOUTH DAKOTA 57105

STUDY OUTLINE TO PERFORM SITE TESTING
TO DETERMINE NATIONAL REGISTER ELIGIBILITY
FOR SITES 39GR32, 39GR53, 39LM33 and 39LM39
IN THE LAKE FRANCIS CASE AREA, SOUTH DAKOTA

FOR

THE U.S. ARMY CORPS OF ENGINEERS
REQUEST NO. RFQ-86-0090

APPROVAL:

L. ADRIEN HANNUS

PRINCIPAL
INVESTIGATOR

DONALD E. SCOTT

VICE PRESIDENT FOR
FINANCE AND PLANNING
AUGUSTANA COLLEGE

DATE: FEBRUARY 12, 1986

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1. INTRODUCTION

The work requested by the U.S. Army Corps of Engineers consists of establishing the National Register status of sites 39GR32, 39GR53, 39LM33 and 39LM39. This investigation will be accomplished through a background literature search and field work at each site of sufficient intensity to clearly establish this status. The work schedule requires that the draft report and nomination forms be submitted 210 days after the contractor is notified to proceed.

The four sites in question cover a time-span from the earliest Plains Village period to the Historic period. Two of the sites, 39LM39 and 39LM33, have been previously excavated and salvage work has been conducted at 39GR32.

Although there are general similarities in the approaches that will be taken to evaluate these sites, each is unique. While there are general research questions that could, and should, be addressed at each site, what makes them potentially eligible for the National Register are the site-specific research problems that might be addressed.

The testing plans set forth in this proposal are designed to enable determining each site's eligibility status. The plans utilize, as far as possible, information derived from prior work at the sites; information visible in exposures at the sites (e.g. lake cut banks); and information to be derived from surface examination. What testing is proposed is specific, problem-oriented testing, designed to established the presence or absence of cultural deposits in key areas of the site or at key depths. This information, linked to a geomorphological study of each site, will enable an evaluation of the likely extent of the critical cultural deposits - the key to the nomination evaluation. Indeed, at site 39GR53, it is uncertain whether there are any "in situ" remains at all.

2. PERSONNEL/BACKGROUND KNOWLEDGE/FACILITIES AVAILABLE

The Archeology Laboratory of the Center for Western Studies (ALCWS) is based on the campus of Augustana College in Sioux Falls, SD. In addition to its own facilities and equipment, the Archeology Lab has access to additional space and a wide range of scientific equipment in the Augustana Science Center. ALCWS has sufficient archeological equipment to outfit several survey crews and three testing/mitigation crews. Two 4x4 Broncos are used as field vehicles and a theodolite is used for detailed surveying work. Reports are prepared on an IBM displaywriter system, with access to a range of computers on the campus, as well as photographic dark rooms and other facilities.

All accounting/book keeping records are organized by Lynette Rossum and processed by the Augustana business office - essentially being double-checked in the process. Access to all records is available at any time.

The permanent staff at ALCWS consists of three persons who have been Principal Investigators for a variety of projects, an administrator and a laboratory technician. Additional field crew personnel may be hired for this project. Augustana College is an Equal Opportunity Employer; those requirements, and the requirements specified in the solicitation, would be applied when hiring personnel.

A very extensive range of cultural resource investigations has been undertaken by the individuals at the Archeology Lab (see vitae); two of the more recent larger scale projects are directly relevant to this proposal:

Project name:	Survey of a Portion of the West Bank of Lake Francis Case, Lyman County, SD.
Entity for which work done	U.S Army Corps of Engineers, Omaha
Type of work:	Class III Cultural Resource Survey.
Name of contact:	Rich Berg, Corps of Engineers, 6014 USPO & Courthouse, Omaha, NE 68102 (402) 221-4630
Location:	Lyman County, South Dakota
Person Weeks on Project:	50 person weeks
Bibliography:	Winham, Lueck 1984; Lueck 1983

Project name:	Test Excavations at Thirteen Sites on the East Bank of Lake Oahe, South Dakota.
Entity for which work done:	U.S Army Corps of Engineers, Omaha
Type of work:	Evaluative testing of archeological sites
Name of contact:	Rich Berg, Corps of Engineers, 6014 USPO & Courthouse, Omaha, NE 68102 (402) 221-4630
Location:	Walworth, Potter and Sully Counties, SD
Person Weeks on Project:	15 person weeks
Bibliography:	Winham and Lueck 1983; Winham 1983

3. NATIONAL REGISTER EVALUATIONS/RESEARCH DESIGN

The important aspects of the sites under investigation, with regard to their National Register eligibility, consist of their integrity and ability to yield information important in prehistory or history. While the archeological community is continually discussing the question of what makes an archeological site eligible for the National Register, one overriding consideration is the potential of the site to address important/significant research questions involving culture patterns, culture process or activities important to the history or prehistory of its locality or a wider region.

If a site (or district) is considered potentially eligible the documentation required for the archeological property consists of a number of elements. First, a detailed record of the spatial parameters, structure and content of the site must be constructed which focuses on the aspects of the site that are significant with regard to its nomination, a description of the site's environmental setting, integrity/current condition and cultural/temporal identification. Next, the significance of the site, information content and research potential need specifying and setting into an appropriate framework. Finally, the specific geographical information and illustrations necessary to locate and document the site must be compiled.

The research designs proposed for the site testing programs outlined below, therefore, are first designed to assess the site content

and integrity, and to determine whether the present research potential of the site is sufficient for nomination to the National Register. If nomination is seen as appropriate, additional site recording is proposed to provide the necessary documentation/illustration of the site and its environment required for the National Register Nomination process itself.

As will be discussed below, providing that the necessary cultural contexts are preserved at each of the sites under consideration, all would be eligible for nomination to the National Register; however, a special circumstance surrounds site 39GR32.

4. STUDY OUTLINE

a) Literature and Records Search:

The Archeology Laboratory of the Center for Western Studies undertook a field survey along the west bank of Lake Francis Case which provides the most recent documentation of site 39LM33 (Winham and Lueck 1984). The background literature and records search for that project, and the information provided by the survey of the southern portion of the west bank of Lake Francis Case (Lees, Brown and Mandel 1985), will provide the major reference sources for this project.

However, for National Register evaluations, a very detailed statement of the significance of each site will be necessary. On a very specific level, therefore, additional background research will be necessary at those sites considered eligible for nomination after the initial field work has been conducted. Specific research areas to be addressed at these sites include Great Oasis/Initial Middle Missouri/Extended Middle Missouri relationships, nature of the Extended Coalescent occupation of this area of the Missouri Trench, and late nineteenth century occupation of this region and Dakota acculturation.

A starting point for all evaluations is the management plan for archeological resources in the state. In South Dakota there is a working draft that addresses the state's archeological resources under 24 "study units." The sites under consideration here are located in what are termed the Big Bend and the Ft. Randall study units. While this document is not finalized, and indeed is designed to incorporate

new data as they become known, it does list several research topics related

to these areas that are considered significant by the archeological community. The following topics are relevant to this project:

-- Geomorphological studies to enhance understanding of buried site locations and contexts.
-- Relationship of living areas to burial complexes.
-- Definition of Great Oasis phase components.
-- Differences in the ceramic assemblages between Initial Middle Missouri (IMM) sites in the Big Bend and Chamberlain areas.
-- Relationship between IMM variant sites on the Trench with those on the James River and off the river trenches.
-- Relationship between IMM and Extended Middle Missouri sites.
-- Early Indian/white relationships.
-- Cultural adaptation and change to early reservation life.

In general terms, information on the development and growth of the Middle Missouri and Coalescent Traditions in the Ft. Randall Study Unit is seen as critical since so many archeological sites of these periods were destroyed without any investigation in this area; and yet it is here that the origins of these cultural streams that dominated much of the Dakotas for a millenium or more developed.

b) Field Investigations:

i) Testing design at 39GR32:

This site is recorded as a pre/proto-historic cemetery, minimally 15 x 80 meters in area, but probably much more extensive, and having a maximum observed depth of 65cm. The Scalp Creek village site (39GR1), now inundated, which contains Plains Woodland and Plains village (Middle Missouri Tradition) components is located 760 meters north of 39GR32. There is a high potential that this cemetery (39GR32) is associated with the Plains village component at 39GR1.

Ordinarily cemeteries are not considered eligible for the National Register, and only burial "mounds," such as the Fort Thompson Mounds, have been listed on the Register in South Dakota. However, cemeteries can qualify from their association with historic events or as part of a district. For this site to be eligible for nomination to the National Register the following must be determined:

1) That there still exist a substantial number of burials at the site, able to inform on prehistoric demographics, burial customs, subsistence and health.

2) That these burials can be related to the Scalp Creek village site, or that they relate to a pre/proto-historic period to which their examination would add significant information. Since the Scalp Creek Site is now inundated, it is necessary that the cemetery, if associated with that site, can be shown by itself to be a significant resource.

If both these criteria are confirmed by the testing, then the site would be further documented and nominated to the National Register. If one or both of the criteria are not met, then the site would not be nominated to the National Register. However, being a cemetery site under threat from the erosion of the cut bank, as the survey report states, due to "federal preservation legislation and humanistic valuations ... the results of this testing (should) be used to implement a program of intensive data recovery at the site if warranted," and

minimally salvage any additional exposed burials and prevent further loss by erosion through stabilization or salvage.

To implement the above, we propose the following on-site work:

a) Inspection of the present cut bank to locate any burials in the process of eroding out of the site and to record and interpret the geomorphology of the site with regard to the potential area to be examined for burials.

b) Preparing a contour map of the site to compare with the 1984 survey map to determine what, if any, of the site has disappeared in the intervening 2½ years.

c) Undertake judgemental high density coring using a Gidgings Soil Coring rig (3" diameter core) if able to be driven to the site (?) or a 4" diameter hand corer, over a 10 x 10 meter area on the knoll. If positive results are obtained, testing will proceed inland, using transect coring, until sufficient negative results have been obtained to indicate the absence, or extremely sparse occurrence, of burials. If negative results are obtained from the knoll, testing will be undertaken in the vicinity of the previously recorded burials, or currently exposed burials, and be extended inland from those locations. Cores will be taken to a maximum depth of 1 meter. All cores and tests will be plotted on the contour map. Soil removed in testing/coring will be screened through ¼" mesh screens.

d) Based on the above three stages of field work a decision will be made to undertake a formal test (1x1m or 1x0.5m) in one area, in an attempt to recover diagnostic material, or to provide samples for radiocarbon dating.

A decision on the eligibility of this site will then be made in the field. If considered potentially eligible a complete photographic record of the site will be made for documentation purposes and the additional research required to support the nomination will be undertaken.

If there are burials eroding out of the site, the U.S. Army Corps of Engineers will be notified immediately, but salvage of such burials is not a part of this proposal. Only materials recovered during subsurface testing will be collected.

This recording/testing program will be accomplished by a crew of three persons in two days.

ii) Testing design at 39GR53:

This site is recorded as a multi-component, historic and prehistoric (Initial Middle Missouri) site extending 410 meters along the cut bank, but with an unknown (if any) inland manifestation. Only material on the lake shore was observed at the site and extensive shovel testing behind the lake shore failed to reveal any additional cultural materials. It is possible, however, that cultural deposits exist above the shore but are buried deeper than could be revealed through shovel testing.

There is a possibility that the material recovered from the lake shore represents Great Oasis and Initial Middle Missouri; the relationships between these two phases are regarded by the archeological community as significant research issues. Additionally, the report indicates that historic ceramics were recovered which suggests a potential association of 39GR53 with the Whetstone Indian Agency, located nearby between 1868 and 1872.

Given the reported fact that extensive shovel testing has taken place inland at this site, it appears unlikely that extensive historic remains are extant. The prehistoric component may, however, be deeply buried. If this component exists and is extensive, the site would be eligible for nomination to the National Register.

To efficiently determine the site's status, we propose to excavate a series of backhoe trenches at the site extending inland from the lake shore. Prior to this an inspection will be made of the cut bank and shoreline to ascertain potential concentrations which might guide the location of the trenching. A map of the site would be prepared showing these concentrations and on which the trenches would be plotted. A minimum of three 4m long trenches will be excavated. The depth of the trenches will be determined by inspection of the cut bank and interpretation of the geomorphology at the site with regard to potential for buried deposits. If cultural material is located, the trenching will be kept to a minimum to avoid unnecessary destruction of the archeological record at this time. Backhoe trenching is seen as the only feasible way of "deep testing" this area efficiently.

If no cultural material is located during the trenching operations, which will include screening of backdirt and close inspection of the

trenches each time a spit of soil is removed, then the site will be considered to have been destroyed.

If cultural material is recovered, backhoe testing will cease in that area and a formal, controlled (1x1m) test excavation made. Based on the geomorphological circumstance of the recovered cultural material, the nature (density/type) of that material, and an in-field analysis of the material, a determination of the eligibility status of the site will be made. If considered eligible, a determination of the potential extent of the site would be made and tested through additional backhoe trenching. The site would be fully documented through photographs and a contour plan map.

Testing and evaluation of this site will be accomplished by a three man crew and backhoe operator in two days. Only material recovered from the subsurface testing, and surface diagnostics, will be collected.

iii) Testing design at 39LM33:

This site is recorded as an Initial Middle Missouri Earthlodge village site, extending 180m N-S by 100m E-W. Addditionally, a few Extended Middle Missouri ceramics have been recovered, comparing in part to the nearby King Site (39LM55). The site was previously excavated by C.S. Smith in 1953 and P.L. Cooper in 1954 as part of the River Basin Survey program. At that time at least one complete rectangular house was excavated, along with portions of another. These excavated areas have not been definitely relocated, but are probably close to the current cut bank location.

The significance of this site relates directly to the extent of the preserved Initial Middle Missouri cultural deposits. To answer this question the following program is proposed:

1) Detailed inspection of the cut bank.

2) Attempt to relate the previous testing, of which several photographs exist, to the present site to determine the location of those tests and likely erosion of the site.

3) Systematic shovel and coring tests along transect lines inland from the exposed cultural material in the cut bank.

4) One - two test excavations (1x1m) inland if cultural deposits are shown by the shovel/coring to be extensive, to fully document the potential of this site.

All excavated material will be screened through ¼" mesh screens and the location of any subsurface tests plotted onto a contour map. If considered eligible, additional photographic documentation will be undertaken. Only material recovered during subsurface testing, and surface diagnostics, will be collected.

This evaluation program will be undertaken by a crew of three persons in a 2-3 day period.

iv) Testing design at 39LM39:

This site is perhaps the most complex of the four under investigation. It consists of a ranch site "Jewell Ranch" (most of the foundations of structures relating to this site are now inundated); a late nineteenth century Dakota occupation [excavated in 1953 (Smith 1953); analyzed in 1978 (Logan 1978) and again in 1984 (Lees 1985)]; and a probable Extended Coalescent occupation, notable for the paucity of material present when compared with other nearby sites such as the Spain site (39LM301) and Clarkstown (39LM47).

Specific important research questions that might be addressed by this site relate to both the Dakota and Extended Coalescent occupations. Regarding the former, analysis (Lees 1985) has suggested the Dakota assemblage is the by-product of rapid economic change, while also reflecting the existence of a resilient Dakota cultural pattern during this period of early reservation settlement. Lees concludes that there was differential acculturation among the Dakota during the last decades of the nineteenth century, with the economic sector responding to need, and the private sector showing a conservatism in adopting different cultural patterns.

Since this analysis is essentially based on only one site and one feature at that site, there is a clear need to further evaluate the acculturation process, both at other sites and by more detailed investigation of the Deerfly site. Such investigation would include examining areas surrounding habitation structures to discern the wider patterning of Dakota activities and to investigate the relationships between the various nineteenth century loci observed at this site.

Regarding the Extended Coalescent occupation, it has been observed (Lees, Brown and Mandel 1985) that the assemblage at 39LM39 and the Spain site (39LM301), located directly below 39LM39, are similar. A possible temporary and dependent function to 39LM301 is suggested for 39LM39 - a hypothesis that is an important one to investigate in understanding the dynamics of Plains Village life at this time.

The proposed testing and evaluation program at this site is, therefore, directed at assessing the site's potential to address the above issues. If the site is considered sufficiently well-preserved for

this research, it will be considered eligible for nomination to the National Register.

The specific evaluation program proposed is as follows:

1) Assess the previous work done at this site with regard to the spatial distribution of the material (Note: The 1985 survey report by Lees, Brown and Mandel lists several historic loci within what is termed Locus C. but only provides a plan of one area [locus C(9-3) 11/12] and does not key in the areas identified in 1985 with the 1953 plan).

2) Assess the extent and impact of adverse effects at this site - erosion from the reservoir, previous testing, the later Jewell Ranch activities, and general erosion.

2) Undertake a controlled surface mapping of the site and cultural material with the aim of delimiting "concentrations" of material by material type (lithic, ceramic, glass, metal, etc.) and by period - prehistoric, proto-historic, and historic. No material will be collected at this time. Additionally, the location of the 1953 excavation areas that are still above water will be relocated where possible, and the 1985 loci also plotted.

3) Subsurface evaluation by formal testing (1x1m units) in one to three areas of material concentrations to evaluate the proto-historic and prehistoric deposits at the site in areas away from those previously tested. Only material recovered from the subsurface testing, and surface diagnostics, will be collected.

Based on the above procedures an assessment will be made as to the eligibility of the site. Additional documentation will follow if considered eligible.

The testing/evaluation program at this site will take a crew of three persons, four days to accomplish.

5. ANALYSIS/EVALUATION PROCEDURES

Minimal cultural material will be removed from the sites being tested, as this is not the intent of the evaluation. What material is removed from the surface of these sites shall be related to determing the eligibility of the site - specifically temporality. All material recovered from testing/excavations will be collected, analyzed, catalogued and curated.

Analysis of artifacts will be geared, in all cases, towards determining the cultural affiliation/association of the site or different contexts within the site.

Analysis of the other data recovered from the site - geomorphology, spatial distribution, material density, adverse impacts and site topography - will be directed at making a determination of the integrity of the site and how the site may have been transformed since its original abandonment.

A final determination of the eligibility of each site for nomination to the National Register shall be made after completing these analyses. If a site is considered eligible because of its potential to address important research questions, then it must be documented that the site contains the data required. In all cases this relates to integrity - undisturbed or relatively undisturbed cultural contexts - rather than to factors such as density and types of material present.

6. WORK AND EXPENDITURE SCHEDULES/FLOW CHART

Because of the prior work undertaken by our organization in this area, only minimal preparatory time will be required before the field work begins after receipt of the notice to proceed. The most important work undertaken prior to the field work will be obtaining any additional information on the sites in question - such as the location of the historic loci at 39LM39.

It is our contention that the necessary background literature for this project is readily at hand in our library, or can be obtained through interlibrary loan or correspondence with other professional archeologists. Therefore, no specific travel is identified relating to the literature search portion of this project.

The final preparatory work will involve coordinating the field work so that a soil scientist/geomorphologist (Dr. Westin) can visit the area, and that the backhoe/soil coring rig (operated by Bill Lee, Colman, SD, is also available. The three man field crew shall be composed of one or two of the three principal investigators at ALCWS - L. Adrien Hannus, Peter Winham and Edward J. Lueck, and one or two crew members out of a pool of persons currently available (including Kurt Watzek, Melinda Ritter, John Butterbrodt, Paul Miller and Kathy Winham).

A field period of 12 days (inclusive of travel to and from the project area) is required for this project, as outlined. The field crew will be based out of Chamberlain to investigate the sites in Lyman County, and out of the Bonesteel/Ft. Randall/Lk. Andes area to investigate the sites in Gregory County.

Post field work will consist of the analysis/cataloging of the collected material, specialized reports on the soils/geomporhology at the sites (Dr. Westin), on the historic artifacts collected (Loren Horton), and on the Plains Village ceramics (Joseph Tiffany). Illustrations and photographs will be developed and a radiocarbon sample submitted, if appropriate to the evaluation process (such as in determining the date of the burials at 39GR32).

On receipt of all the analytical data the draft report and any National Register nomination forms will be prepared and submitted in 8 copies. A journal article will be submitted within 30 days of the draft

report. The final stage will be the incorporation of the review comments and submittal of the final report.

TENTATIVE SCHEDULE - Based on current commitments of ALCWS.

Notice to proceed : May 1, 1986 (as indicated in the solicitation)

Field work begins: End June 1986

Field Work ends: Mid July 1986

Analyses completed: End September 1986

Draft report submitted: Mid November 1986

Corps review: By January 1987

Final report (within 60 days of receipt of review comments) by March 1987.

MANAGEMENT FLOW CHART FOR TESTING SITES ALONG LAKE FRANCIS CASE

TASKS

1: Background work/organization.

2: Field work.

3: Analyses/specialist reports.

4: Draft report and National Register Nomination submissions.

5: Journal article submission.

6: Final report submission.

TIME ALLOTTED TO EACH TASK (Days)

	Tasks						TOTAL
Personnel	1	2	3	4	5	6	
Hannus (P.I)* (or crew member in field)	1	12	3	10	-	2	28
Winham (P.I)* (or crew member in field)	1	12	3	10	2	2	30
Lueck (P.I)* (or crew member in field)	-	12	3	-	-	-	15
Rossum (Administration)	1	4	-	6	-	2	13
Dr. Westin (Soils/geomorphology)	-	2	1	-	-	-	3
Tiffany (Ceramics)	-	-	1	-	-	-	1
Horton (Historic artifacts)	-	-	1	-	-	-	1
Johnson (Illustrations)	-	-	4	-	-	-	4
Griesenbrock (Photographs)	-	-	2	-	-	-	2
TOTALS	3	42	18	26	2	6	97

*Note: Only one P.I. will be in the field throughout the project; a second P.I. and another crew member, or two additional crew members will make up the rest of the 3-man crew.

DIAGRAMATIC REPRESENTATION OF THE WORK SCHEDULE

	1986							1987		
	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MARCH
TASK 1: XXXXXXX (3 man days over a period of 4-6 weeks)											
TASK 2: XXXX (42 man days over a period of 12 days)											
TASK 3: XXXXXXX (18 man days over a period of 7-8 weeks)											
TASK 4: XXXXXXXXXX (26 man days over a period of 8-9 weeks)											
TASK 5: XXXX (2 man days over a period of 3-4 weeks)											
TASK 6: XXXXXXXXX (6 man days over a period of 7-8 weeks)											

APPENDIX 9

Copy of 1953 Field Report on Excavations at 39LM33,
by Roger Grange, Jr.

39LM33-R83

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UNIVERSITY OF KANSAS
Museum of Natural History
Lawrence, Kansas

July 15, 1954

Mr. Robert L. Stephenson
Missouri Basin Project
Burnett Hall
University of Nebraska
Lincoln, Nebraska

Dear Bob:

I have your letters of July 13. Thanks for your kind words to Murphy and to Hall.

Enclosed herewith are the maps and field reports pertaining to sites 39LM33 and 39LM55. I do not have facilities for the copying of the field notes on such short notice. In my opinion Paul will have all the information he needs and in more digestible form if he takes the enclosed with him.

At the Lyman site (39LM33) I would recommend the excavation of one of the depressions untouched by us. The excavations we carried on in the refuse mound are probably adequate. The house from which we obtained the most data is like those at the Swanson site. The site is important in that up river connections show in the pottery: A large Fort Yates Cord Impressed Rim, for example, bearing clear simple stamping. I think the site is a little later than the Swanson site.

At the King site (39LM55) I would recommend the completion of the excavation of the house we started. The map of the entrance and the south wall is enclosed. The edges and door are extremely well defined by burning. The site is important in that the house type is unique and because of a seeming blend of Thomas Riggs and Over focus ceramics. The location of the house dug by garth should be determined in the field. When we dug there we did not know he had dug a house. Our site map should prove to be accurate. Garth's site map is worthless. He must have blown it up from a Corps of Engineers map. The locations of the buildings are symbolic rather than factual. I must have the typed report on this returned to me. It is the only copy I have. Please have it copied before Paul leaves.

I have inked tracings of the house and site maps here. Later excavations may be added and they will be ready for publication without doing them over again. Perhaps when all the work is done a joint paper might be done on these sites. The pottery analysis of 39LM33 is complete in note form. The analysis of the pottery from 39LM55 is incomplete.

Comments on the trade material from the Stansbury site will be in another letter.

If you need more information write to me. Paul can keep in touch directly from the field. I expect to be here most of the summer.

Sincerely,

Carlyle S. Smith

39LM33-R85

Please note: Report by Roger Grange, Jr., 1953 -- site 39LM33

This was typed from a white on black reflexed copy. Generally it was difficult to read and in some instances impossible.

On page 12 under "Excavation of the Mound" you will notice "xxxxxxxxxxx" at the end of line 15 and "obliterated" between lines 16 and 17. That is exactly as it appeared on the reflexed copy.

On page 18 "?" at the end of line 5 also appeared in the original.

On page 19 there are blank spaces on the typed copy. These spaces were filled in by hand in the original. The writing is too faint to read.

On page 22 the word "beel" appears on line 2. The word probably should be bell.

On page 26 in the "Table" at the right are the words "Can't read #". This is exactly as it appeared in the original.

Evelyn Stewart.

[1987 note - in this copy the pages have been collapsed and some spelling errors corrected but any ambiguities have been kept]

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Report by Roger Grange, Jr.
1953

Site 39LM33

Site 39LM33 is a prehistoric village of long rectangular houses. It is located on the west bank of the Missouri River near Chamberlain, South Dakota. The site is similar to the Swanson site (39BR16) which is located on the opposite bank of the river about three miles to the north (Hurt, 1951, p. 1).

39LM33 is located in the NW¼ of the SW¼ of Section 35, Township 105 North, Range 71 West, Lyman County, South Dakota. It is on the 1360 foot contour and will be inundated by the waters of the Fort Randall Reservoir (U.S.G.S. Survey Map, Chamberlain Quadrangle).

The site is situated on a projection of one of the lowest terraces in this portion of the Missouri River valley. To the east the terrace edge slopes steeply down to the floodplain of the river. On the north the terrace is cut by the drainage of a small intermittent stream which flows down from higher terraces and the high bluffs overlooking the site to the west.

Surface indications of the aboriginal occupation are a low mound on the eastern terrace edge and five shallow depressions marking the location of houses. (See site map) The prehistoric occupation is buried under a mantle of loess. Recent modification of the surface includes dead furrows and an irrigation ditch which has destroyed a portion of one house. The site was under cultivation at the time of excavation.

The Excavations:

The cooperative agreement between the University of Kansas and the National Park Service called for the intensive testing of site 39LM33. The complete excavation of a house was not undertaken. Six test trenches were excavated in various surface features or areas of the site. Two of these

tests gave no evidence of any prehistoric occupation and were abandoned in favor of the more productive test areas. The other tests were in house depressions and in the low mound at the terrace edge.

Procedure:

The test trenches were of varying dimensions and shapes, some of them having been expanded to more fully expose features. With the exception of the trench in the mound which was excavated in five foot square units, each trench constituted a single excavation unit. In all trenches arbitrary eight inch levels were maintained unless some feature, such as a house floor or cache pit, necessitated modification of this excavation procedure.

General Description of the Excavations:

Test Trench 1. Located along the northwestern terrace edge. No evidence of prehistoric occupation found. Dimensions: 48 feet long, 3 feet wide. Excavated to depths ranging from 8 to 16 inches below the surface.

Test Trench 2. Located in a house depression near the northern edge of the terrace. The trench cuts diagonally across a long rectangular house (House 2) and was expanded to fully expose the entrance ramp and a portion of the end of the house. Dimensions: 44 feet, 6 inches long, 5 feet wide. Excavated to depths ranging between 26 inches (sterile subsoil outside house) and 43 inches (house floor at deepest point) below surface.

Test Trench 3. Located in a house depression to the south of Test trench 2. Trench cuts across a long rectangular house (House 1) at right angles to its long axis. Dimensions: 60 feet long, 3 feet wide. Excavated to

depths of 24-28 inches (sterile subsoil outside house) and 37 inches (house floor) below surface.

Test Trench 4. Located in the southeastern corner of the terrace. Identified by artifacts and by local informant Dinehart as cutting into an area where a recent farm building stood. No evidence of prehistoric occupation. Dimensions: 10 feet long, 3 feet wide. Excavated to a depth of 8 inches below surface.

Test Trench 5. Located in the low refuse mound on the eastern edge of the terrace. Three cache pits and a portion of W.H. Over's test pit were located. Dimensions: A total of 10 five foot squares were excavated. Excavated to depths ranging from 16 to 32 inches below surface. The cache pits extended below 32 inches below surface.

Test Trench 6. Located near Test Trench 2. This trench was excavated to test the nature of the wall of House 2 opposite the entrance ramp exposed in Test Trench 2. The trench was L shaped. Dimensions: 7 feet, 3 inches long on one arm and 6 feet long on the other arm. The arms were 2½ and 3 feet wide. Excavated to depths of 18-22 inches (sterile subsoil outside house) and 37-41 inches (House floor) below surface.

General Description of Features:

1. House 1. See Houses.
2. Oval lens of reddish soil in Refuse Mound (Feature 5). 11 x 13 inches in diameter. Basin shaped, 2 inches deep at center. No artifacts. 7 inches below surface.
3. Bell shaped cache pit in floor of House 1, near north edge. Diameter at mouth 28 x 32 inches. Diameter at neck, 27 inches. Diameter at bottom, 42 inches. Depth, 39 inches. Contents: Pottery, splinter flaker, worked scapula, end scrapers, side scraper, flake knife, multi-edged knives, scoria abraders, multi grooved scoria abraders, white chalk and fragments of bone and stone.
4. House 2. See Houses.
5. Refuse Mound on eastern edge of terrace. See Refuse Mound.
6. Bell shaped cache pit in Refuse Mound (Feature 5). Diameter at mouth 40 x 44 inches. Diameter at neck, 39 inches. Diameter at bottom, 47 x 50 inches. Depth, 16½ inches. Mouth of pit 24 inches below surface. Contents: Pottery, side scraper, flake knife, scoria abraders and fragments of bone and fire cracked rock.
7. Bell shaped cache pit in floor of House 1 near South edge. Diameter at mouth, 30 x 32 inches. Diameter at neck, 24 inches. Diameter at bottom, 39 inches. Depth, 35 inches. Contents: Pottery, a cache of 110 unworked flakes of Bijou Hills quartzite, scoria abraders, unfired clay, a fragment of a bison horn and fragments of bone and fire cracked rock.
8. Shallow, irregular depression in the floor of House 2. Contents: Pottery, charcoal and gravel.
9. Bell shaped cache pit in the Refuse Mound (Feature 5). Diameter at mouth, 43 inches. Diameter at bottom, 53 inches. Depth, 39 inches. Mouth is 19 inches below the surface. Upper portion of pit poorly defined. Contents:

Pottery, flat awl, flakers, scapula, painted scapula, bison skull and bone fragments, projectile points, flake and multi-edged knives, single edge knife, shaft smoother, sandstone and scoria abraders, hammerstone, worked shell, unfired clay and fragments of bone and stone.

10. Shallow, irregular depression in floor of House 2. Contents: Fragments of charcoal, bone and rock.
11. Irregular pit in floor of House 2. Diameter at mouth, 17 x 24 inches. Diameter at bottom, 11 inches, rounding to 4 inches. Depth, 15 inches. Contents: Pottery, painted bone, fragments of bone and gravel.
12. Basin shaped pit in the floor of House 2. Diameter at mouth, 18 inches. Depth at center, 4 inches. Contents: Pottery, splinter flaker, unworked scoria and fragments of bone.
13. Basin shaped pit in the floor of House 2. Diameter at mouth, 14 x 16 inches. Depth at center, 4½ inches. Contents: Charcoal and bone fragments.

14. Basin shaped pit in the floor of House 2. Diameter, 16 inches. Depth at center 5 inches. Partially excavated only. Contents: Charcoal and bone fragments.
15. Bell shaped cache pit in the floor of House 2, near southeastern edge. Diameter at mouth, 34 inches. Diameter at neck, 29 inches. Diameter at bottom, 37 inches. Depth, 30 inches. In profile this pit is from 4 to 9 inches above the house floor as excavated. However, some changes in floor level are to be expected and the pit is most probably a floor feature. Contents: Pottery, splinter flaker, projectile point, side scraper, flake and multi-edged knives and fragments of bone.
16. Irregular basin shaped pit in the floor of House 2 at the end of the entrance ramp. Dimensions: at mouth, 25 x 16 inches. Depth, 4 to 9 inches. Contents: Two bison vertebrae and 3 fragments of fire cracked rock.
17. Basin shaped pit in the floor of House 2, near entrance ramp. Not completely

excavated. Diameter, 21 x 34 inches. Depth, 9 inches. An area 9 inches in diameter at the edge of this pit extends 11 inches below the bottom of the feature. The deeper extension may be a post mold. Contents: Pottery, hammerstone, yellow ochre, and fragments of bone, stone and charcoal.
18. Irregular pit superimposed on post mold in floor of House 2. Diameter at mouth, 29 x 13 inches. Depth of pit, 8 inches. Depth of post, 14 inches. Contents: Fragments of bone and rock.
19. Bell shaped cache pit in Refuse Mound (Feature 5). Diameter at top, 53 inches. Diameter at bottom, 64 x 73 inches. Depth, 25 inches. Mouth is 21 inches below surface. Contents: Pottery, splinter flakers, hammerstones, and fragments of bone and rock.
20. Bowl shaped pit in the entrance passage area outside House 2. Diameter, 26 x 31 inches. Depth at center, 10 inches. Mouth is 24 inches below surface. Contents: Pottery, rib flaker and side scraper.
21. Irregular shaped pit with a flat side along the edge of the house pit on the northeastern end wall of House 2. Some of the irregularity in shape may be due to rodent disturbance. The pit was in the floor of the house and did not undercut the house pit. Dimensions at mouth, 25 inches wide and 56 inches long. Depth, 15 inches. One post is intrusive into the pit fill. Contents: Pottery and fragments of bone and rock.
22. Bell shaped cache pit in the floor of House 2 near the northeastern end wall. Not completely excavated. Diameter at mouth, 17 inches. Approximate diameter at bottom, 26 inches. Depth, 26 inches. Contents: Pottery, polished bone and fragments of bone and fire cracked rock.
23. Area at least 14 x 18 inches on floor of House 2 which was stained with red ochre. Stain extended under wall of test trench and was not completely uncovered.

Village Plan:

The depressions visible on the surface are arranged in two parallel rows, three houses in one and two in the other. The rows are oriented to the north and south. Village refuse was deposited in at least one mound at the terrace edge.

Houses:

Trenches were excavated in two of the five visible surface depressions at 39LM33. Both of these depressions proved to mark the location of houses. While fragments of charcoal were found throughout the fill of these structures, in both cases the burned material was present only in small quantity. Only 1 post in House 1 was burned. The portion of the south edge of House 1 exposed in the test trench was marked by charred roof material, but the distribution of the charcoal was limited to the area of the floor immediately adjacent to house edge. In House 2 a layer of dark fill including charcoal fragments was found immediately above the floor, but the quantity of the burned material was relatively small. It is probable that burning did not entirely account for the destruction of either house. The standing portions of the houses may have been burned subsequent to the collapse of the structure from other causes.

Three of the visible depressions are round; the remaining two are ovoid in shape. House 1 was located in an oval depression, and the depression in which House 2 was located was probably originally oval but had been partially obliterated by an irrigation ditch of recent origin.

House 1:

Feature 1 in field notes.

Shape: Probably long rectangular. Test trench cuts across the house on its short axis. Width of the house is approximately 25 feet. House edge on the south side is well defined by its appearance in the trench floor, the presence

of posts and the outline of the house pit in the trench profile. The house pit on this side has an almost vertical wall with a slight inward slope. On the north side of the house the wall of the house pit is obliterated but the profile shows bedded fill sloping gradually towards the center of the house. The beginning of this slope is aligned with the post molds marking house edge in the floor of the trench. House edge shows in the trench on the south side at 30 inches below surface and on the north side post molds show at 32 inches below surface. In profile the shoulder of the house pit on the south side is 20 inches below surface and house floor is 35 inches below surface. At this point the house pit was 15 inches deep.

Entrance: Not excavated. Probably oriented to the west. See House 2.

Posts: None of the posts near house edge are burned. They were marked only by a darker colored post mold in the soil. Three posts on the south side are 6 inches in diameter and range in depth from 7 to 17 inches. On the north side, one post is 6½ inches in diameter and 10 inches deep and the other approximately 10 inches in diameter and 7 inches deep. The posts are from 11 to 16 inches apart, measured edge to

edge. A single post, 6 inches in diameter and 4 inches deep, was located in the house floor, slightly to the north of the center line. It was burned. All posts were set vertically into the floor.
Roof: No roof beams or main support posts other than those discussed above were located. Small fragments of charcoal were found in house fill, beginning at a depth of 24 inches below surface. A few fragments of willow rods about ½ inch in diameter were found near house edge on the south side.
Fireplaces: None found in the test trench.
Cache Pits: Two bell shaped cache pits, features 3 and 7, were excavated. These pits were located in the house floor 3 feet from the edges of the house, one on each side of the house.
Other Features: None located in test trench.

Fill: The fill of the house, as seen in their trench profiles, dips downward at the edges of the house forming a basin shaped depression. The layers of fill are parallel to the floor of the house in the area between the edges. From top to bottom the layers in the fill are:

Present Humus and Plow zone.

Three bands of dark stained loess. The House Pit shows in profile as having been excavated into stained loess.

Sterile yellow loess below house floor.

This profile, when compared with the stratigraphy in test trench 2 (House 2), lacks a band of lighter loess between the dark loess of the present humus line. This band is present in test trench 3, but outside the limits of House 1 to the north. It is probable that the plowing of the field has removed this layer from the House 1 fill. Both House 2 and the Refuse Mound, where this deposit is present, are near the edges of the terrace and probably have not been plowed as extensively as the House 1 area.

Artifacts: See Tabulations.

House 2:

Feature 4 in field notes.
Shape: Long rectangular house with an interior entrance ramp. Posts occur widely separated at the house ends; it is of the open ended Anderson focus type. Length, 39 feet. Width, 25 feet. (Estimated width.) Edges of the house are well defined in the trench floor by the dark refuse stained loess fill. The house pit had been excavated into the sterile yellow loess subsoil. House edge was found at depths ranging from 19 to 26 inches below surface. House floor ranges from 31 to 43 inches below surface depending upon the relationship to the surface depression. The pit is visible in excavated portions and profile as being from 9 to 24 inches deep. At house edge the pit slopes inward at the bottom 3 inches in a depth of 24 inches.

Entrance: The exterior portion of the entrance complex was not defined in the test excavations. The interior entrance ramp is oriented to the Southwest and is at right angles to the house wall. The ramp is 8 feet long and rises from 9 to 10 inches above the house floor. It has irregular rather than straight sides but is roughly rectangular in shape. Three post molds on one side and two on the other were located. Associated features are Feature 16 and feature 20. Feature 16 is an irregular basin in the house floor near one corner of the ramp. Feature 20 is a basin shaped pit in the entrance area outside the house.
Posts: 14 post molds were found associated with house edge or with the entrance ramp. None were burned and only one included a few wood fragments. The posts range in diameter from 4 to 7 inches, 6 inches being the median. Depths range from 2 to 27 inches. All posts were set vertically into the floor and with only one exception were within the house pit. At the edge of the house two posts are 15 inches apart. At the end of the house posts are 2 feet 6 inches and 3 feet 3 inches apart.

Roof: None of the main roof support posts were located. No roof beams were found.

Fireplaces: None found in the test.

Cache Pits: Two bell shaped cache pits were excavated. These were both within 2 feet of the house edge. They are features 15 and 22.

Other Features: 8 pits or depressions in the floor were located and excavated. These are features 10, 11, 12, 13, 14, 17, 18, and 21. Feature 16 was also a pit in the floor (See Entrance.) Feature 23 is an area of the floor stained by red ochre.

Fill: The major layers in house fill, from top to bottom are:
Present Humus.
Yellow loess. Artifact bearing but light in color.

Dark Refuse Stained Loess.
Sterile Yellow Loess below floor.

Immediately above the floor there is a layer of fill, from 2 to 12 inches thick, which is somewhat darker and contains more charcoal fragments than the rest of the fill. However the amount of charcoal present is not typical of a burned roof.

Artifacts: See Tabulations.

Refuse Mound:
Feature 5 in field notes.

Feature 5 is an oval mound approximately 20 x 35 feet in diameter. At its center point the mound rises 19 inches above the general surface of the terrace. Near its northern edge the distance between the surface and sterile subsoil is 15 inches. At the deepest point, near the center, the distance between the surface and sterile subsoil is 33 inches. The mound is located on the eastern edge of the terrace and on its eastern side blends into the terrace edge sloping down to the bott land below.

Excavation of the Mound: On the surface, the top of the mound was found to be greatly disturbed by large rodent and animal burrows. It was also known that in 1918 Wm. H. Over had tested the mound and removed four burials. (Reference?) Due to these disturbances the test trench was placed along the western flank of the mound, oriented on a north-south axis. The test trench consisted of a series of six five foot squares. An arm of three five foot squares was extended to the east to further investigate the central portion of the mound. This arm of the trench cut through xxxxxxxxxxxxxx Over's previous excavations and the stratigraphy was found to completely
obliterated.
disturbed in this area. On the south end of the trench an extension of one five foot square to the east was opened to facilitate the excavation of a cache pit. Three bell shaped cache pits were located and excavated.

Stratigraphy: Natural layers in the mound are, from top to bottom:

The present humus line; from 2 to 5 inches thick, generally about four inches.

Below the humus line there is a layer of light colored loess from 1 to 6 inches thick; the mean is from 4 to 5 inches in thickness. This loess contains artifacts but is not stained as the underlying refuse and occupational layer.

The refuse layer itself is from 12 to 27 inches in thickness. The refuse layer shows some banding, three major layers, each extending across the entire mound, being visible in the profile. In some areas the stratigraphy is greatly disturbed by rodent activity and by previously excavated test pits. Portions of the limits of Over's excavations were located and two concentrations of bone fragments associated with these limits are probably Over's sorting piles and not prehistoric deposits.

Below the refuse layer the yellow loess subsoil is found. The subsoil, sterile of artifacts, is 15 inches below surface at the north edge of the mound and 33 inches below surface at the center of the mound. An auger test made in the bottom of a cache pit (Feature 9) shows the sterile loess extending to a depth of about 88 inches below surface. At that point the yellow loess is replaced by a darker loess which is flecked with lime deposits.

Cache Pits: Three bell shaped cache pits, Features 6, 9 and 19, were located in the mound. See General Description of Features for details concerning these pits. The mouths of these pits were 24, 19 and 21 inches below surface, respectively. They did not intersect one another.
Other Features: Feature 2, a lens of reddish soil, was found at a depth of 7 inches below surface in the mound. It contained no artifacts.
Artifacts: See Tabulations.

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Stratigraphy of the Site:

The stratigraphy of the site has been discussed in detail in connection with the descriptions of Houses and the Refuse Mound. The idealized strata of the site are:

Humus zone. Some artifacts present.
Loess. Some artifacts present.
Stained loess. Refuse bearing occupational layer and house fill.
Yellow loess. Sterile subsoil.
Darker loess with lime flecks.

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BONE TOOLS

Fishhook: One fragment of a bone fishhook was recovered. It is U shaped with one Opide short and tapered to the polished point. The longer side forms the shank of the hook but is broken. Some cancellous tissue remains at the bottom of the hook but otherwise the surfaces are polished. Dimensions: Length, 26 mm. (Fragment); Length of point, 17 mm.; Outside width, point to shank, 10mm.; Inside width, point to shank, 5 mm.; Width of shank and point shafts, 3mm.; Width at base, 6mm.; Thickness, 2mm.

Splinter Awls: Two splinter awls made from sections of cannon bone were recovered. They are of irregular shape and unworked except at one end where they taper to form the point. The tapered portion of the shaft is smoothed. Dimensions (in order): Length, 98 and 75 mm.; Width, 32 and 19 mm.; Thickness 14 and 16mm.; Length of tapered shaft, 38 and 41 mm.

Flat Awl: This specimen is made from a bone splinter but has been shaped and smoothed on all surfaces. It is flat in cross section. The end, now partly broken, was cut off squarely. The sides are parallel and then taper to a sharp polished point. Cancellous tissue on the shaft has been smoothed until virturally gone. Dimensions: Length, 80 mm.; Width, 9mm.; Thickness, 4mm.; length of tapered point, 32 mm.

Flakers: A total of nine bone artifacts may be identified as flakers. These show a wide range of size and workmanship. Two are made of intact ribs. The remaining seven specimens may be classed as splinter flakers but have a wide range of finish. All but one specimen seem to have been made of ribs.

Rib Intact Flakes: Two specimens are made of slightly modified ribs. Both have been cut squarely at right angles to the long axis on one end. The opposite

end of one specimen tapers to a blunt point which shows polishing from use. Dimensions: Length, 250 mm.; Width, 29 mm.; Thickness, 12mm. The second specimen is broken in an irregular fracture on the end and three points and a portion of one side show polish from use. Dimensions: Length, 213 mm.; Width, 23mm.; Thickness, 12mm.

Splinter-Flakers: Splinter flakers fall into two categories, rough and smooth. All but 1 are made of split ribs and show varying degrees of smoothing in surface finish. Three of the specimens, each different in shape, have shaped ends, smoothed sides and partial or complete smoothing of the cancellous tissue. The worked ends of all three artifacts are polished from use. Two specimens show additional polishing along their sides, but the main use seems to have been at the ends. These two flakers may have had secondary use as spatulas or quill flatteners. All three have parallel sides. One specimen has a square blunt end. Dimensions: Length, 152 mm.; Width, 16 mm.; Thickness, 9mm. A second specimen tapers at each end to blunt points. Dimensions: Length, 99 mm.; Width, 20 mm.; Thickness 6 mm. The third specimen has one rounded and one tapering pointed blunt end. Dimensions: Length, 160 mm.; Width, 13 mm.; Thickness, 4mm. Four of the splinter flakers are rough being irregular in shape and unworked on all surfaces save for smoothing at the working point which is polished from use. Three are made of split ribs and one from a fragment of a cannon bone. One specimen has been partially smoothed in the cancellous tissue (56 mm. behind the point) but is otherwise rough and unworked.

Dimensions: Length, 88mm.; Width, 12 mm.; Thickness, 5mm. One split rib splinter flaker tapers on the end to a blunt point; the other has a blunt nearly squared point. The cannon bone splinter flaker has a square, blunt point. Dimensions (in order): Length, 158 mm., 220 mm., 93 mm.; Width, 20 mm., 20 mm., 16 mm.; Thickness, 10 mm., 6 mm., 11 mm.

Splinter Knife: This blade is made from a section of cannon bone. It is roughly triangular in cross section. The thin edge curves up to a polished point. The curved portion of the blade is also polished from use. The remainder of the specimen has not been modified, and the end opposite the working end is roughly broken. Dimensions: Length, 68 mm.; Width, 18 mm.; Thickness, 8 mm. tapering to edge.

Polished Bone: This artifact is made of a segment of a rib, one end being cut off squarely and the other roughly broken. The concave side of the rib is polished. In the center of the convex side there is a series of short scratches, from 1 to 2 mm. long, at right angles to the long axis of the specimen. There are 17 scratches. Dimensions: Length, 105 mm.; Width, 21 mm.; Thickness, 13 mm.

Worked Scapula: Four pieces of worked scapula were recovered from the site. Only one is a complete specimen, but all were probably hoes. Two show an unmodified articular end; the others are fragments of the scapula blade. On all specimens the vertebral spine has been removed; in two cases it has been extensively smoothed, one being polished in a

small area. One of the other two specimens shows a very small area where the cancellous tissue is smooth. The blade end on one specimen is rounded but shows no smoothing or polish from use on the edge. This specimen had been painted with red ochre. Three specimens show some smoothing on the edges of the blade and all have striations or polish on the surface of the blade. The complete specimen has a shattered blade which tapers to a point at one side. The point is blunted and polished from use and the articular end is unmodified. Length of this specimen is 236 mm. Two of the specimens, both from Feature 9, had been painted with red ochre. Dimensions: Lengths range from 275-138 mm. but all are fragments.

Painted Bone Fragments: Numerous fragments of bison bone were found to have been painted with a thin film of red ochre. Most of these came from Feature 9, a bell shaped cache pit in the refuse mound. Painted bone from this feature include two pieces of worked scapula, several fragments of a bison skull, three fragments of bison leg bone, a bison metapodial and one ? . Two unworked specimens of bison rib were found with some flecks of red ochre adhering to them, and several other painted bone fragments were recovered.

Table 1. Tabulation of Bone Artifacts

	House 1 (F.1)			House 2 (F.4)							Refuse Mound (F.5)		
	Fill	Floor	T.T.2							Entry			
	32-40"	F. 3	16-24"	24-32"	32-40"	F. 11	F. 12	F. 15	F. 22	F. 20	F. 9	F. 19	TOTALS
Fishhook.				1									1
Splinter Awls.				1	1								2
Flat Awl.											1		1
Rib Intact Flaker.,										1	1		2
Splinter Flaker.	1	1		1			1	1				2	7
Splinter Knife.				1									1
Polished Bone.									1				1
Worked Scapula.		1									3		4
Painted Bone.			2	2		2					8		14
TOTALS	1	2	2	6	1	2	1	1	1	1	13	2	33

CHIPPED STONE

Projectile Points: Four projectile reports were recovered. No two are alike in form, though all have been manufactured through the use of carefully controlled pressure flaking. The points will be described individually:

a. Triangular in shape with slightly convex sides. Base is slightly concave. Two side notches are present. Material: Red chert. Dimensions: Length 29 mm.; Width at base above notches, 15 mm.; Width at base below notches, 16mm.; Width at notches, 11m.; Thickness, 4mm.

b. Fragment; point and base are missing. Triangular in shape with straight sides. Two side notches. Material, pink . Dimensions: Length, 19 mm. (Fragment); Width at base above notches, 14 mm.; Thickness, 4 mm.

c. Triangular with convex sides, convex base. No side or end notches. Material: . Dimensions: Length, 24 mm.; Width, 15 mm.; Thickness, 3mm.

d. Long triangular point with slightly convex sides and base. No notches. Material: brown . Dimensions: Length, 33 mm.; Width, 12 mm.; Thickness, 5 mm.

End Scrapers: Twelves end scrapers were recovered from 39LM33. They are made of a variety of siliceous materials. They range from triangular to ovoid in outline and are plano-convex in cross section. The convex side is thicker at the blunt working end. The flat sides are not secondarily modified, retaining the shape and surface produced in the removal of the flake from the core. The end scrapers fall into two types.

Type 1. (Same as Type 2, Talking Crow) represented by seven specimens, three of which are complete. Scars of the primary flaking remain on the convex surface. Secondary pressure flaking has been used to modify the

working end and the sides of the specimens. Dimensions: Length (Complete specimens only),

16, 22 and 23 mm.; Width 15, 19, 19, 20, 23 and 27 mm.; Thickness, 4, 4, 5, 6, 7 and 8 mm. One fragment too small to measure.

Type 2. (Same as Type 3, Talking Crow) Represented by five specimens, four complete. Convex surface and sides are unmodified. Secondary pressure flaking is found at the working end only. Dimensions: Length, 29, 26, 25 and 18 mm.; Width, 22, 23, 20, 19 and 24 mm.; Thickness, 10, 9, 9, 6 and 9mm.

Side Scrapers: Four specimens have been identified as side scrapers. These are rough flakes with one or both edges slightly retouched by pressure flaking. They are irregular in form, utilizing the roughly oblong shape of the original flakes; they are plano-convex in cross section. Three specimens are made of rough flakes and have been retouched on both edges. One of these is made of Bijou Hills quartzite and is larger than any of the other side scrapers. One specimen is made from a flake which retains the original outsurface of the core boulder on its convex side. This specimen has been retouched on one edge only and bears traces of red ochre on its convex surface. Dimensions: Length, 86, 51, 44 and 38 mm.; Width, 46, 22, 15 and 21 mm.; Thickness, 15, 7, 8 and 8 mm.

Flake Knives: Seven chipped stone artifacts from the site have been classified as flake knives. These tools are made of thin flakes of siliceous materials. The flakes have been used without modification of the original flaking surfaces except on the working edges. Three of the seven specimens have been retouched on two edges, and the remaining four are single edged. The flakes are irregular rectangles in outline. Dimensions: Length range from 19 to 53 mm.; Widths range from 12 to 29 mm.; Thickness ranges from 2 to 6 mm.

Multi-edged Knives: Thirteen chipped stone multi-edge knives were found in the excavation of the site. Only 1 is a complete specimen. Twelve of the knives are made of Bijou Hills quartzite; one is made of chalcedony (?). The knives are

all lone shaped in cross section. The major portion of the surfaces were shaped by percussion flaking, pressure flrking being used only to taper and sharpen the edges. The complete specimen is triangular in outline with slightly convex sides and a convex flattened base. The sides of the other specimens are also slightly convex. Two fragments taper to points, and two others taper towards one end and were probably pointed. Another fragment tapers towards one end but has a sharpened truncated edge instead of a point. Three of the fragments have rounded bases and another tapers to a narrower rounded base. One fragment has an angular corner where two edges join. One specimen is a broad thin blade with convex sides and a convex base but a generally rectangular outline. Dimensions: (Complete specimen) Length, 67 mm.; Width, 35

mm.; Thickness, 10mm. Lengths of fragments range from 21 to 73 mm.; Widths range from 22 to 49 mm.; Thickness ranges from 5 to 17 mm.

Single Edged Knife: One large chipped stone knife had a single edge. This specimen was made from a compact hematite material. It is parallel sided and one end is irregularly rounded: the opposite end is missing. The artifact is triangular in cross section. It was made by utilizing the natural shape of the rock and percussion flaking to shape the one sharpened edge. No pressure flaking was done on this specimen. This artifact could have been used as a side scraper as well as a knife. Dimensions: Length (Fragment), 100 mm.; Width, 76 mm.; Thickness, 29 mm. tapering to edge.

Miscellaneous Fragments of Chipped stone: Eight fragments of chipped stone are too fragmentary to be definitely classified as to implement catagory. One may be a portion of a flake knife, two may be portions of multi-edged knives, one a fragment of a side scraper, two fragments of drills or projectile points and two may be fragments of scrapers.

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Blank Flakes: A total of 110 unworked flakes of Bijou Hills quartzite were found in feature 7, a bell shaped cache pit in the floor of House 1. These flakes were found concentrated in a small area in the pit. None of the flakes is as large as a tool made from Bijou Hills quartzite found in the site and it seems probable that these flakes are the workshop debris resulting from the manufacture of such implements as multi-edged knives.

Several other fragments of siliceous material showing no evidence of retouching were found in the site. One fragment of petrified wood was found.

39LM33-R84-page23 (Table 2)

Table 2. Distribution of Chipped Stone Artifacts

	Test Trench 3	House 1 (F.1)					House 2 (F.4)							Refuse Mound (F.5)									
	Floor																						
	0-8"	8-16"	16-24"	32-Floor Fill	F.3 Floor	F.7	16-24"	24-32"	32-40" Fill	32-Floor	F. 15	F. 20 Entry	F. 21	0-8"	8-16"	16-24"	Profile	F. 6	F. 9	General Dig	Surface	Dirt Pile	Totals
Projectile Points									1	1	1								1				4
End Scrapers Type 1		1		1	2				1					1			1						7
End Scrapers Type 2	1															1						3	5
Side Scrapers					1						1	1						1					4
Flake Knives					1						2					1		1	1		1		7
Multi-edges Knives					2		1	1			2			1	2	1			2				12
Single Edged Knife																			1				1
Miscellaneous worked		1		1	2				1										1			2	8
Blank Flakes		4	1	1	1	110		2	2	4	1		2		1			1	2	3	1	1	137
Petrified Wood									1														1
Totals	1	6	1	3	9	110	1	3	6	5	7	1	2	2	3	3	1	3	8	3	2	6	186

GROUND STONE

Celt: A portion of one ground stone celt was recovered from the site. It is made of basalt (?). The specimen is oval in cross section and tapers towards one end. The end is rounded off in a slightly irregular manner, but is smoothed. The blade end of the celt is missing. The surface has been smoothed but is not polished; the surface is still slightly rough due to the character of the material and the finishing. A heavy patination of lime is found on one side. Dimensions: Diameter, 54 x 69 mm. tapering to 45 x 49 mm.; Length of fragment, 97 mm.

Abraders: Numerous artifacts from the site may be generally described as abrading stones.

Grinding or Rubbing Stone: This specimen is made of an ovoid granitic boulder. It has one flat and one rounded surface, being plano-convex in cross section. The general surface of the artifact is quite smooth, but portions of the flat surface are nearly polished. The flat surface is covered with a lime patination. The tool has been secondarily used as an anvil; the centers of both the convex and flat surfaces are pecked. Dimensions: Length, 100 mm.; Width, 89 mm. Thickness, 55 mm.

Shaft Smoothers: One sand stone shaft smoother was found in the excavation of the site. The specimen is plano-convex in cross section and has parallel sides. The end is rectangular with rounded corners. The groove is off center and runs at a diagonal to the long axis of the specimen. One end is broken off and missing. Dimensions: Length of fragment; 50 mm.; Width, 36 mm.; Thickness, 17 mm.; Width of groove, 9 mm.; Depth of groove, 2 mm.

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Sandstone Abrader: One rectanguloid fragment of sandstone lacks any evidence of a groove and has been classified as an abrading stone. Dimensions: Length, 36 mm.; Width, 31 mm.; Thickness, 26 mm.

Scoria Abraders: These specimens are irregular pieces of scoria with one or more surfaces flattened and smoothed by use as grinding tools. Twelve such abraders were found. Dimensions: Length ranges from 18 to 80 mm.; Width ranges from 13 to 47 mm.; Thickness ranges from 10 to 48 mm. Five of the twelve specimens came from pits in House 1.

Multi-grooved Scoria Abraders: These specimens, seven in number, are irregular pieces of scoria with two or more grooves in their surfaces. These grooves are parallel, intersecting or on different sides of the specimens. Some of the grooves are of shaft-smoother size while others are smaller. Dimensions: Length ranges from 24 to 53 mm.; Width ranges from 21 to 40 mm.; Thickness ranges 13 to 40 mm.

Hammerstones: A total of nine hammerstones were found in the excavation of the site. They are unmodified elongate granitic rocks which show pecking marks at the projecting ends. In some cases they have been broken and fire cracked. Three of the specimens are fairly symmetrical being oval in both outline and cross section. One of these has a flat side showing a smooth, almost polished surface and may have been used as a rubbing stone. One specimen is a small oval quartzite pebble, flat in cross section. One end is roughly broken. The opposite end and a portion of the side near that end show pecking marks. Dimensions: Length ranges from 54 to 100 mm.; Width ranges from 33 to 75 mm.; Thickness ranges from 13 to 52 mm.

Rubbing Stone: A nearly round basaltic pebble with two flat sides. The specimen

39LM33-R84-page 26

has a naturally smooth surface. A patina of lime coats one side. This stone may have been used for rubbing pottery smooth. Dimensions: Length, 40 mm.; Width, 33 mm.; Thickness, 21 mm.

Table 3. Distribution of Ground Stone Tools

	House 1				House 2 Fill						Refuse Mound					
	8-16" T.T.3	32-Floor Fill	F. 3	F. 7	8-16" T.T.2	16" T.T.6	20-32" T.T.6	24-32" T.T.2	32-Floor	F. 17.	16-24"	F. 6	F. 9	F. 19	Can't Read #	
Celt.					1											1
Grinding Stone.						1										1
Sandstone Shaft Smoother													1			1
Sandstone abrader													1			1
Scoria Abraders	1		3	2			1	1			2	1	1			12
Multi-grooved Abraders		1	1					1			1	2			1	7
Hammerstones			2					2	1	1			1	2		9
Rubbing Stone								1								1
Totals	1	1	6	2	1	1	1	5	1	1	3	3	4	2	1	33

Miscellaneous Artifacts

Worked Shell: Two pieces of worked shell were found during the excavation of 39LM33. One of these is a segment of a circular bracelet. It is rectangular in cross section but has no sharp edges. Dimensions: Length of fragment, 46 mm.; Width, 6 mm.; Thickness, 3 mm. The second fragment of worked shell has one straight side which is ground smooth and a slightly convex end. The end is also smoothed. Dimensions: Length, 30 mm.; Width, 15 mm.; Thickness, 3 mm. The bracelet fragment is from feature 9.

(Feature 17)

Paint: Three fragments of yellow ochre were found in a pit in the floor of House 2. A large piece of white chalk was found in feature 3, a pit in the floor of house 1. This specimen has its surfaces smoothed by use and is a slightly tapered rectangular block. Dimensions: Length, 87 mm.; Width, 45 mm.; Thickness, 17 mm. In addition several fragments of bone and bone tools covered with red ochre stain were found. An area on the floor of House 2 was also stained with red ochre.

Clay: Three balls of unfired clay were found. They are irregular in shape. Diameters range from 23 to 50 mm. They are from Feature 7 and 9.

39LM33 Rim Sherd Analysis [This page was over written VOID - Replaced by reflexed copy when records were returned by Carlyle Smith] Copy of original copy follows.

Typed version of reflexed copy of 39LM33 Rimsherd Analysis and original copy of this handwritten sheet follow.

391M33 Rim Sherd Analysis

Museum of Natural History
University of Kansas

Date July 1953
Classified C. S. [illegible]
With assistance of
[illegible] Hurt

	[illegible]	[illegible]	Total
Mitchell Incised	7	9	16
Mitchell Broad Trailed	4	23	27
Foreman Incised Triangle	1		1
Foreman Cord Impressed	3		3
Foreman Cord Impressed Triangle	4		4
Chamberlain Cord Impressed Triangle	1		1
Chamberlain Simple Cord Impressed	2		2
Capitol Plain	35		35
Kimball Modified Lip	69		69
Mitchell Incised Triangle	1		1
Fort Yates Cord Impressed	1		1
Riggs Straight Rim	2		2
Miscellaneous	14		14
Totals	114	32	176

VOID

Replaced by
refiled copy
when records were returned
by Carlyle Smith

391M33-[illegible]

MUSEUM OF NATURAL HISTORY
UNIVERSITY OF KANSAS

Date
Classified

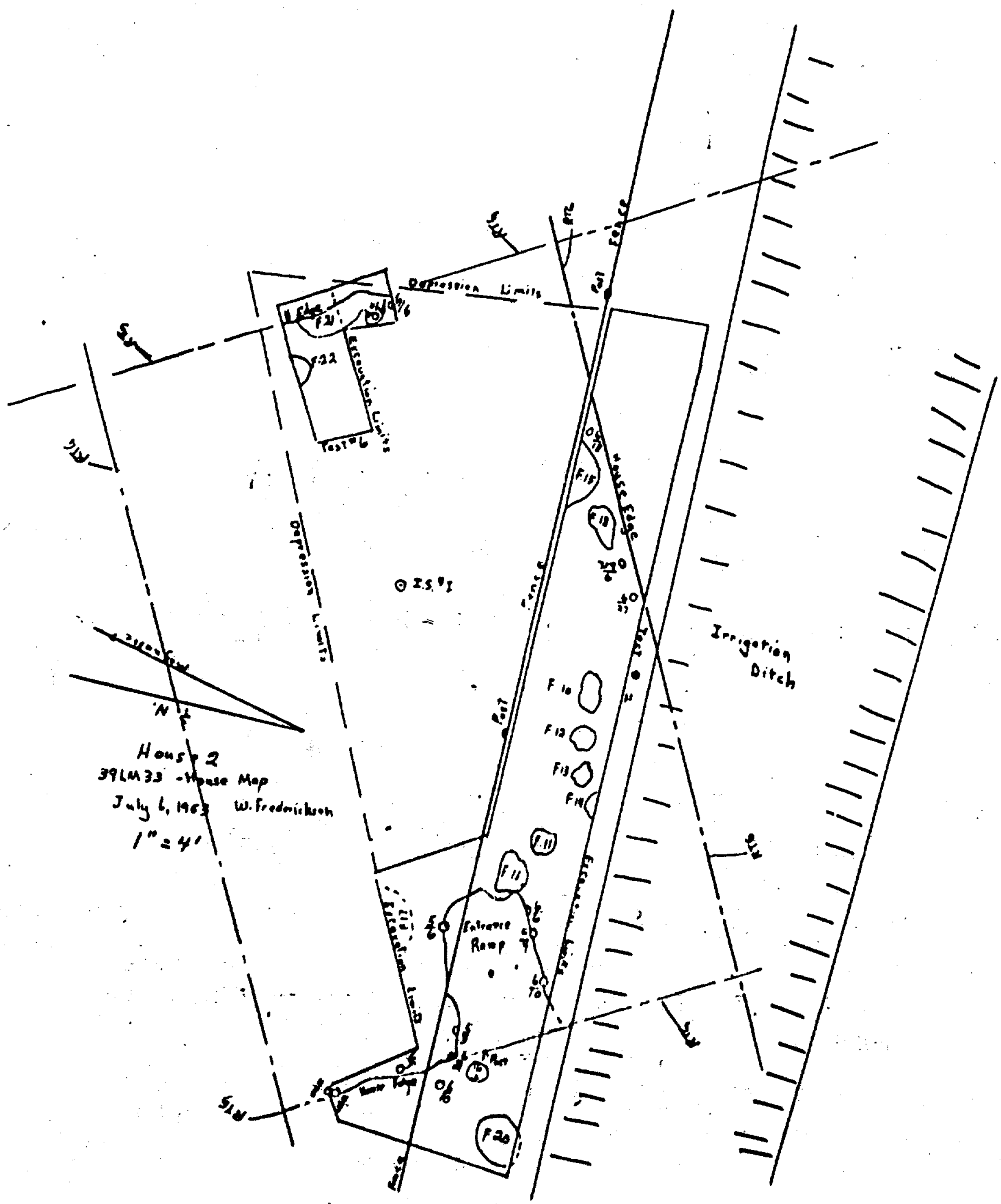
39LM33 Rim sherd analysis	Rim	Shoulder	TOTAL	%	STRATUM %
Mitchell Incised	7	9	7	4.8	8.12
Mitchell Broad Trailed	4	23	4	2.8	1.48
Foreman Incised					6.86
Foreman Incised Triangle	1		1	.7	4.34
Foreman Cord Impressed	3		3	2.1	3.42
Foreman Cord Impressed Triangular	4		4	2.8	1.48
Chamberlain Incised Triangular					3.77
Chamberlain Cord Imp. Triangle	1		1	.7	2.51
Chamberlain Simple Cord Imp.	2		2	1.4	0.45
Stuart Collared Rim					6.06
Capitol Plain K.P.	15				
MFR	10		35	24.2	17.00
Kimball Modified lip	69		69	48.0	42.80
Foreman Flared Rim					.10
Mitchell Incised Triangle	1		1	.7	
Fort Yates Cord Impressed	1		1	.7	
Riggs Straight Rim	2		2	1.4	
Miscellaneous	14		14	9.7	.08
Total			144	1000	874
				(100)	(98.47)

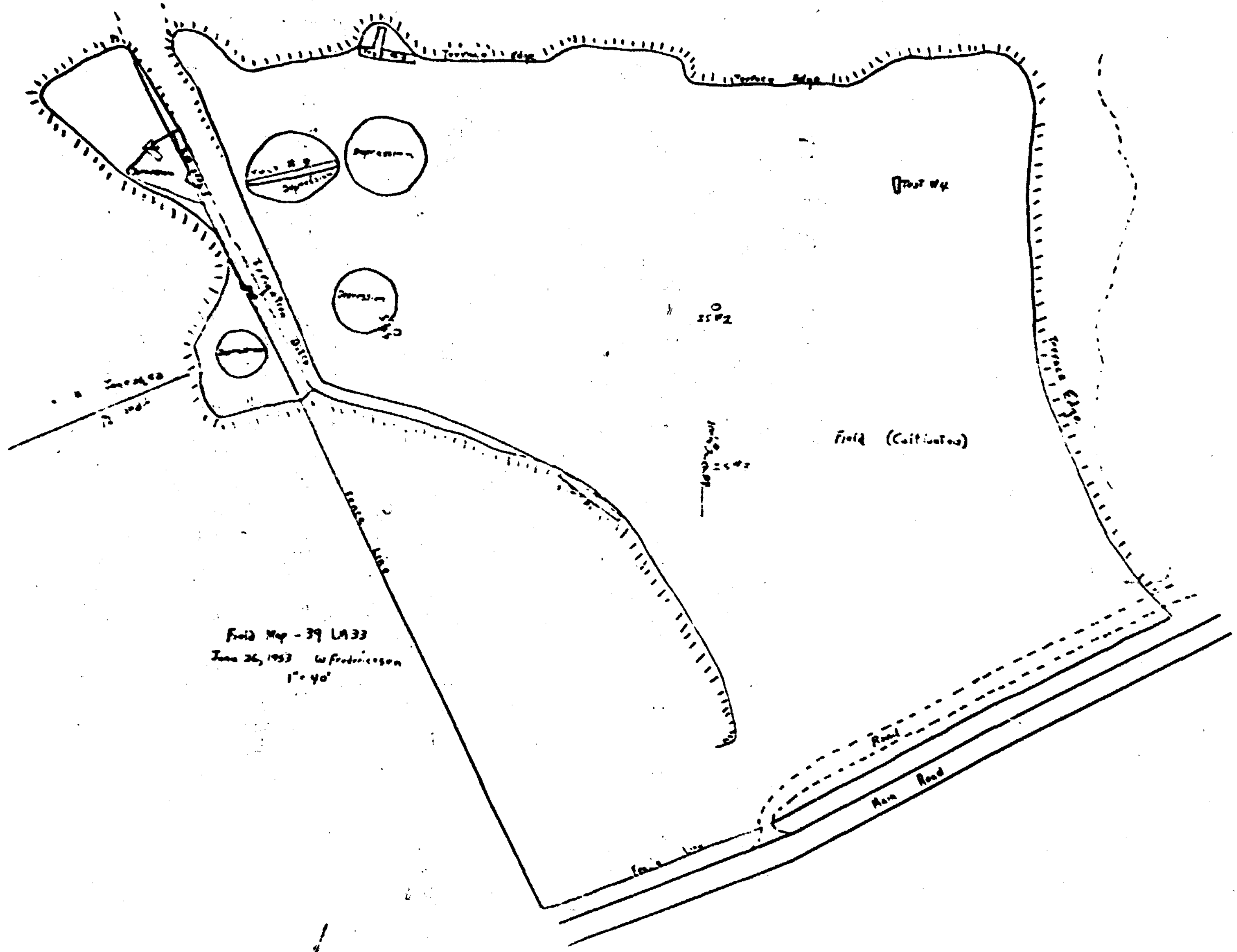
MUSEUM OF NATURAL HISTORY
UNIVERSITY OF KANSAS

Date
Classified

39LM33
Rimsherd analysis

				TOTAL					%					SWSS NO %
Hidden Forest	7	9		7					4.8					8.12
Mitchell Forest Trailed	"	13		4					2.1					1.43
Foreman Thinned														6.86
Foreman Incised Trailed	1			1					.7					4.34
Foreman Cord Impressed				3					2.1					3.42
Foreman Combed Trailed	4			4					2.8					1.71
Chamberlain Thinned														3.77
Chamberlain Cord Impressed	1			1					.7					2.51
Chamberlain Simple Cord Impressed	2			2					1.4					0.55
Stuart Collared Plain														6.06
Capitol plain K.P. 15 MEB 20				35					24.2					17.66
Kimball modified lip	69			69					48.0					42.86
Foreman Flared Rim														.10
Mitchell Incised Trailed	1			1					.7					
Fortified Cord Impressed	1			1					.7					
Riggs Straight Rim	2			2					1.4					
Miscellaneous	14			14					9.7					.43
Total				144					100					99


House 2
39LM33 - House Map
July 6, 1963 W. Fredrickson
1" = 4'
Depression Limits
Excavation Limits
Test #6
F21
F22
Fence
Post
House Edge
F15
F18
I.S. #1
Irrigation Ditch
F10
F12
F13
F14
F11
Entrance Ramp
F20



Field Map - 39 LA33
June 26, 1953 W Fredericksen
1" = 40'

APPENDIX 10

Selected Photographs (copied from xerox copies) of the 1953 and 1954 Excavations at the Dinehart Village Site, 39LM33

39LM33-68

Fort Randall Reservoir

Site 39LM33

TT2. KU neg. no. 39LM33-1.
Photo West.

Kansas University negative
donated by Carlyle Smith.

Arch. Carlyle Smith
Photo by Roger Grange, 6/21/68

39LM33-69

Fort Randall Reservoir

Site 39LM33

TT3. KU neg. no. 39LM33-1.
Photo North.

Kansas University negative
donated by Carlyle Smith.

39LM33-56

Fort Randall Reservoir

Site 39LM33

39LM33, XU F2, end post in house, F3. In post hole no. 3. Photo NE.

Field No. C54-116-10
4x5 plus-x

Arch. Paul L. Cooper
Photo by P. Cooper, 9/15/54

39LM33-57

Fort Randall Reservoir

Site 39LM33

39LM33. Work in XU F2, after removal of posts and of ashes from fireplaces.
Photo NE.

Field No. C54-116-12
4x5 plus-x

Arch. Paul L. Cooper
Photo by P. Cooper, 9/16/54

39LM33-49 ✓

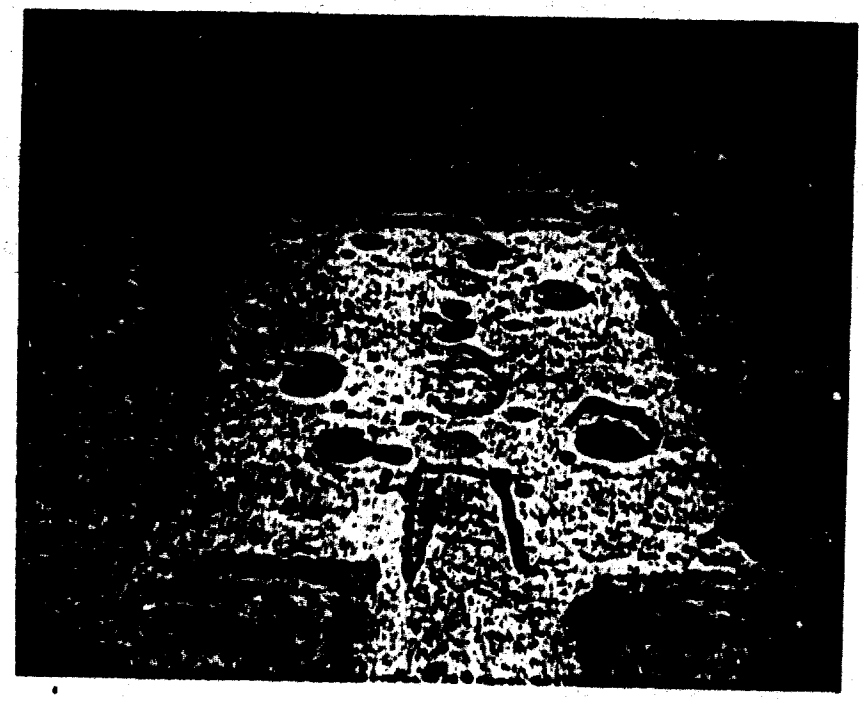
Fort Randall Reservoir

Site 39LM33

39LM33, work in XU F2, scraping floor of house, F3.
Photo LME.

Field No. CSL-LL6-2
4x5 plus-x

Arch. Paul L. Cooper
Photo by P. Cooper, 9/11/74



39LM33-49 ✓

Fort Randall Reservoir

Site 39LM33

39LM33, XU F2, showing house, F3, before removal of wood posts standing above floor.
From ladder.
Photo LME.

Field No. CSL-LL6-3
4x5 plus-x

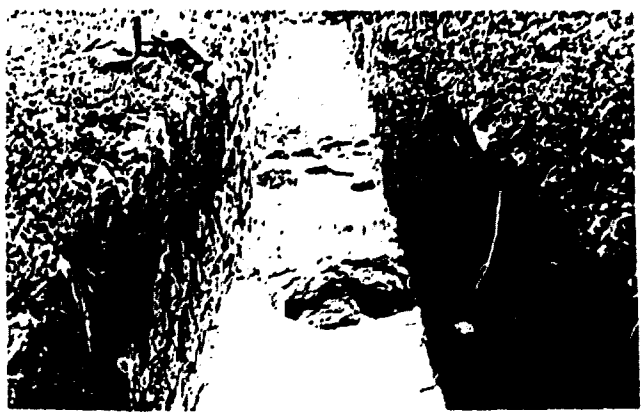
Arch. Paul L. Cooper
Photo by P. Cooper, 9/11/74

39LH33-72

Fort Randall Reservoir

Site 39LH33

TT3, F1, north edge of house. Possible posts, edge and cache. KU neg. no. 39LH33-4 (note they have two of this number--two different negatives with the same number). No direction given.



Kansas University negative donated by Carlyle Smith.

Arch. Carlyle Smith
Photo by Roger Grange, 6/30/53

39LH33-73

Fort Randall Reservoir

Site 39LH33

Entrance ramp in F1, TT2. KU neg. no. 39LH33-5. Photo East.

Kansas University negative donated by Carlyle Smith.

Arch. Carlyle Smith
Photo by Roger Grange
6/30/53

APPENDIX 11

Specialist Report - Evaluation of the Historic Component at the Deerfly Site, 39LM39 by Dr. Loren Horton

SPECIALIST REPORT
Evaluation of the Historic Component at the Deerfly Site, 39LM39
by Loren Horton

The significance of the historic components at the Deerfly Site

Although my conclusions about the significance of the artifacts collected at the Deerfly Site 39LM39 were negative, they are based solely on the few artifacts presented for examination. The Smith excavation uncovered additional artifacts that might change this entirely when placed in conjunction with those from earlier surveys and the later one. For instance, the spoon, the lard can, the cut nails, the bottle glass, the pressed glass, the stoneware, and other glass would lend much more credence to the idea of extended and family occupation instead of transient livestock and hunter visitation.

Earlier aboriginal occupation is beyond my capacity for comment, without much more extensive examination of records, artifacts, and a visit to the site. This is really unnecessary, for other archeological expeditions have done this and have written their reports. Indeed, the historical records show clearly that there was occupation by pre- and post-contact Indians at and near the site. The Lower Brule Agency relocation in 1876 to near Deerfly is also a strong indication that habitation was more extensive than the artifacts indicate. The abandonment of this settlement at c. 1894 or c. 1899, and the subsequent habitation by white families for farming and ranching have left even fewer remnants for study. I can well believe that the area was a part of a ranch, for the fencing and hunting artifacts support that. The Lees conclusion, p. 106, that there is historical evidence of continuous occupation from at least 1876 to the 1950s is not really valid. What is presented indicates occupation 8 miles away in 1876, and possible occupation between 1894 and 1899 by Indians. White occupation is even more tenuous because Knutson owned the land from 1900 to 1904 and Jewell from 1904 to 1914. This is actually only a 20 year occupation proof, from about 1894 to about 1914, with some question marks in that. Of course all of this does not take into account the erosion into the reservoir of more than 60 meters of land since 1953. We probably will never know what artifacts were lost by that.

Archaeological evidence of human habitation on and near the site is stronger than that of the historical records. However, Lees, on p. 108, may err in placing too much credence on the replacement of cut nails by wire nails after 1900. There is much feeling that cut nails continued to be used for certain purposes for the first two or more decades of the 20th century. Note my analysis of the cut nail Find #14 in the collections of artifacts sent. The Lees analysis of the rest of the historic artifacts is sound (that is I concur with it) and although he persists in placing the date of occupation earlier than I would based on the same evidence, we can certainly be sure that there were people around here at the end of the 19th century and the beginning of the 20th century. I am not sure we can ever distinguish between the Indian and White occupation, since the material culture of the two groups would have been very similar by the turn of the century. The aboriginal and trade artifacts might possibly come from an earlier occupation than Lees thinks, on p. 110. Cultural horizons do not seem to be that clear.

The rest of the artifactual analysis in Lees is convincing, being always alert to the fact that attribution of artifacts to people is very subjective.

Euro-American occupation of this site probably would have been manifested with different collections of artifacts, as Lees states on p. 119. Historical records do indicate that it is more likely that the occupation prior to the turn of the century was Dakota than it was Euro-American. Both the records and the artifactual evidence also suggest that this was a slight and brief occupation.

Historical literature about the settlement of South Dakota includes many references to movement on to former reservation land, and the taking up of homestead claims on such land. Schell claims, for instance, that during the third great land boom the region between the Cheyenne and White rivers included many women. Railroads were crucial to such land settlement, bringing in many colonies of European nationalities as well as advertising land sales throughout the United States. The first great boom from 1878 until the mid 1880s, caused an increase in population from 11,766 to 328,808. Townsites platted by railroad companies to increase the speed of settlement and the extraction of agricultural products from the region also had immense effects on the settlement patterns. More to the point, this increase in settlement increased the accessibility to manufactured goods, both for the White and for the Indian inhabitants.

None of these comments are intended to discount the historical value of the site. These are questions that should be considered, because in any nomination for Historical Register status, the review committee should and probably will pose the same questions. As I have said before, it is obvious that people lived in this area. Whether that fact is important, or more important than all of the other places people lived in South Dakota, is the question. The allied question is who lived there. I simply don't have enough evidence to come to a satisfactory conclusion about the latter question, and the former one is also not wholly proven by the presented material.

I have re-read much of the literature on the settlement of South Dakota located for a previous project, and can find nothing that helps me reconcile the questions and the evidence into answers that would be acceptable beyond a reasonable doubt.

Collected artifact descriptions

39LM39, 86-0245, 17 (Find #14)

This artifact is a 40d nail, common cut which has undergone the annealing process to prevent rupture when clinched. This process was invented in 1871, so this nail post dates that. Square cut nails are manufactured, weigh at 21 units per pound, and were used for heavy framing of structures, rafters, studding for partitions, and as stringer holders in wooden bridges. They were used simultaneously with wire nails until well into the 20th century, particularly for fastening wood to cement, concrete, and plaster. It was a common item, inexpensive, and available nation-wide. Distribution was to all retail and mail order outlets. The item has no manufacturer identification marks and is non-diagnostic for purposes of dating a site or limiting it to a user group. These sorts of items were considered a necessity by rural and small town residents.

39LM39, 86-0245, 1-78 (Level 1-F6, 7-22-86)

This artifact, a common wire fence staple, was inexpensive and available nation-wide. Distribution was to all retail and mail order outlets. The piece has no manufacturer identification marks, and it non-diagnostic for purposes of dating a site or limiting it to a user group. These sorts of items were considered a necessity by rural and small town residents. Catalogs ranging in dates from 1875 to 1911 show the same item, and production of similar, if not identical staples, continued well into the 20th century.

39LM39, 86-0245, 1-79

This artifact is a fragment of an expended shell casing of small caliber, perhaps a 22 short. Rim fire cartridges of this type were available before the beginning of the 20th century, and rim and center fire examples are extremely common. The item was inexpensive, was available through nation-wide distribution to all retail and mail order outlets, and although the manufacturer could be determined, it would not prove to be very useful in using the item for diagnostic purposes. These items were considered to be a necessity by rural and small town residents.

39LM39, 86-0245, 26

This artifact is a fragment of rusty metal, probably sheet iron, but there is not enough left to determine original use or other identification. With it is a container of numerous miscellaneous small fragments of additional rusty metal. There is no way to tell more, nor to even propose further research from these small remnants. The origin, use, age, manufacture, and other pertinent data require more than is here for analysis. Chemical analysis might provide some information, but would be unlikely to be helpful in this circumstance.

39LM39, 86-0245, 1 (Area B)

This artifact is a mashed shell casing, expended, large caliber; the number is undetermined. This is less common than small caliber ammunition and might not be available through as many retail and mail order outlets. However, it would not be at all rare, and might be explained by any one of several reasons for being on this site or in conjunction with the other artifacts from this collection. Date is presently imprecise, but could be determined from further research -- this is not recommended unless further artifacts allied to it are recovered. It is probably 20th century. Use cannot be estimated at this time. In certain places this might be diagnostic, but not when placed in the circle of other items found here.

39LM39, 86-0245, 2

This artifact is a length of barbed wire, single piece, manufactured, with barbs cut on one wide of a strip metal band. Barbs are 3/4" apart, and are regular. This is an uncommon style of barbed wire for the Great Plains environment. The recovered section is well galvanized and has resisted corrosion. It most closely resembles two models illustrated in Glover. Number 312 is listed as "Allis Flat Ribbon Barbed Wire," patented by T.V. Allis, January 5, 1892. Number 623 is listed as "Buckthorn with Diamond Center Wire," patented by T.V. Allis, July 26, 1881. Extensive lengths of this type of wire would be ineffective for either fencing out or fencing in. Its presence on this

site is something of anomaly and unless further lengths of the same model are found, it must be put down as an aberration rather than diagnostic.

39LM39, 86-0245, 3

This artifact is a fragment of clear glass, too small to be identified or of use in research to determine original source of use.

The artifacts collected from this site are not particularly interesting or informative in and of themselves individually, and they are even less so when considered as a collective group. None of them are rare, with the exception of the sample of barbed wire, and none of them show any sort of life other than the ordinary one for the people who inhabited the site. While conclusive generalizations are impossible from this small and heterogeneous sampling, they seem to indicate habitation during the early part of the 20th century by a small number of people with no scatter of discarded household utensils or dishes. Based solely on this artifact sampling, one could conclude that people only visited this site to hunt or care for loosely confined livestock. The presence of a glass shard is the only thing to make a negative impact on this generalization. It is also possible that the corroded metal might be from a household item, but it is more likely that it was not.

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R. Peter Winham, Assistant Director
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2032 South Grange Avenue
Sioux Falls, South Dakota 57105

Dear Peter:

Your accommodations to the Corps requests for clarification and expansion of my report on the Deerfly Site (39LM39) seem to be quite to the point. Perhaps it would be well to point out that the Lees report, p. 104, does state that Dakota presence in the area in the 19th century was nomadic - based on bison migrations and fur trade, with the transition from traditional methods of livelihood to dependence on American governmental and military presence not taking full effect until the later decades of that century.

The quotation you use is apropos. Movement of white settlers, the railroads, and other disruptive elements make it more and more unlikely that there could have been a stable or significant Indian presence for any extended period of time. The map attached to my report shows such overwhelming American intrusion so close by as to make manifest a tremendous artifactual and folkway change in the life styles of any Indians who chanced to live in the general vicinity. That was certainly true by 1880. Railroads and land booms are the dominant themes of that period in South Dakota history. Sporadic and erratic occupation by Sioux families in such an area would not be definably different from such occupation by casual white settlers. And no documentary or artifactual evidence is convincing in making any conclusion about historical effect or significance from either action.

The time period(s) associated with barbed wire are always from date of patent until that particular model is no longer manufactured or distributed from warehouse supplies in stock. Some models were produced from the 1870s until the 1930s. Others, such as the type represented by the artifact 39LM39, 86-045, 2, would have had a much shorter span of existence. Its intended use was as a fencing material, to contain livestock within an enclosure, or to bar livestock from an enclosed area where other activities were going on. Where wood was scarce or unavailable, barbed wire fencing was the obvious substitute. However, this type of barb was not found to be effective in use; moreover it was expensive to produce. Its earliest patent date is 1881, its latest patent date was 1892. Because it was not very saleable on the Great Plains, and because it was never produced in any great quantity, availability for distribution would most likely have been less than 10 years from date of patent, and probably even less than that.

Only chance would have brought such wire to this area. And I doubt that it would have been purchased after the mid-1890s. Its presence in this region is an eccentric exception, akin to finding an ivory chop stick in the area. Chance can bring strange objects to strange places, but their presence is non-diagnostic. Unless a local hardware dealer got sold a white elephant product by a Chicago salesman, this model of barbed wire should not be where it was found. And because no other fragments of this or more common models of barbed wire were found at the site, the presence of this artifact is rendered even less explicable. But all of this does not make it significant either.

Loren N. Horton

Comments on the historical records

The historical records show clearly that there was occupation by pre- and post-contact Indians at and near the site. Lees records documentary sources placing the Dakota at the mouth of the White River in the early years of the nineteenth century. The Dakota presence in the area in the nineteenth century was nomadic, based on bison migrations and fur trade, with the transition from traditional methods of livelihood to dependence on American governmental and military presence not taking full effect until the later decades of that century.

> In 1868, an agency was established in the Big Bend region to serve the Lower Brule. In 1876, partly as a reflection of the significant Lower Brule settlement at the mouth of the White River, this agency was relocated to this vicinity at a site (39LM54) about 8 miles upriver from the Deerfly site on the Missouri River. This agency continued to serve the Lower Brule until sometime between 1890 and 1894, when it was moved to the new Lower Brule Reservation created in 1889....Lower Brule settlement at the mouth of the White River remained important after 1889, however. Substantial Lower Brule settlement continued at this location until 1894, when most Lower Brule relocated to their new reservation north of the White River. A few Lower Brule families remained south of the mouth of the White River until 1899 (Schusky 1975:153). Euro-American settlement of the Deerfly site vicinity dates from 1900, when Martin Knutson established title to the land (Lyman County, Deed Book 5:158). In 1904 this land passed to Charles S. Jewell, who owned it until 1913 (Lyman County, Deed Book 18:610). Jewell was probably responsible for the major development of this land since it was still referred to as Jewell Ranch when the Deerfly site was excavated in 1953 (Grange 1953) [Lees 1985:105].

The Lees conclusion (p. 106) that there is historical evidence of continuous occupation from at least 1876 to the 1950s is not really valid. What is presented indicates occupation 8 miles away in 1876, and possible occupation between 1894 and 1899 by Indians. White occupation is even more tenuous because Knutson owned the land from 1900 to 1904 and Jewell from 1904 to 1914. This is actually only a 20 year occupation proof, from about 1894 to about 1914, with some question marks in that....Archaeological evidence of human habitation on and near the site is stronger than that of the historical records. Indeed the concrete foundations evident at the site reflect early to mid-twentieth century occupation, and it is recorded that the buildings housed the University of Kansas expedition to this and other nearby sites in 1953 (Lees, Brown and Mandel 1985:107).

Lees also records that in 1919 W.H. Over visited a site that was probably the Deerfly site (Lees 1985:103) which he interpreted as an Indian Village - presumably there being nothing at that time to indicate its historic nature.

Comments on the age of the assemblage

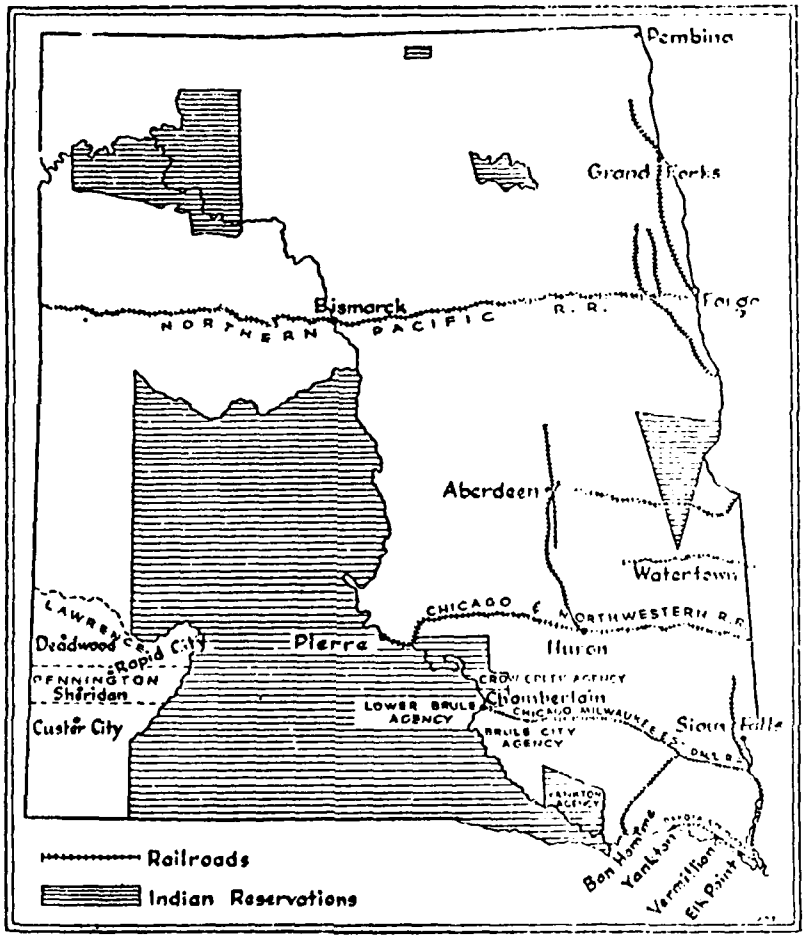
Lees examination of the artifacts from the site was inconclusive in determining whether this site was occupied prior to 1900 or not. Based on the overall preponderance of cut nails over wire nails, however, Lees suggested that "the Deerfly site was occupied before about 1900 - probably substantially before that date" (Lees 1985:108, emphasis added). In this Lees may err in placing too much credence on the replacement of cut nails by wire nails after 1900. There is much feeling that cut nails continued to be used for certain purposes for the first two or more decades of the twentieth century. Lees analysis of the rest of the historic artifacts is sound (that is I concur with it).

Lees concludes that:

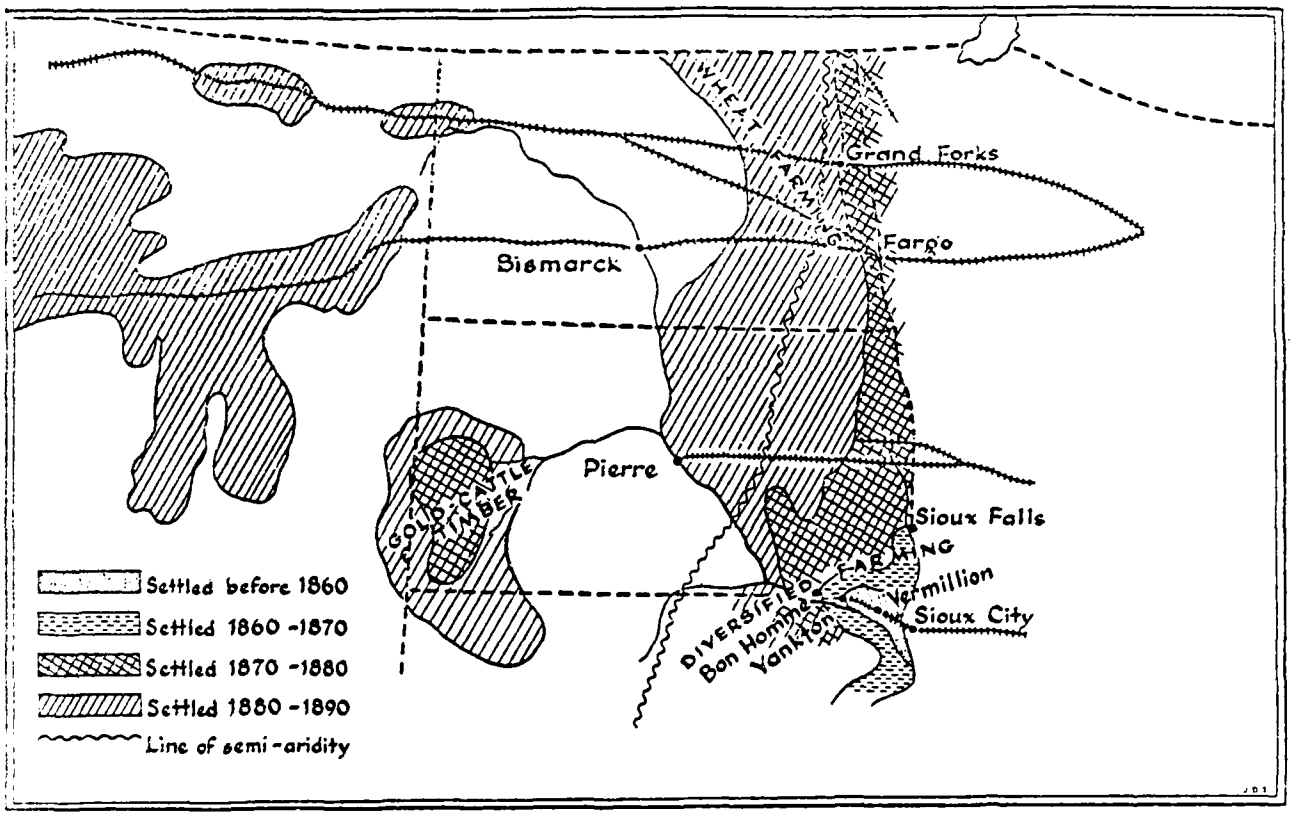
> Considering, however, that (1) no artifacts made exclusively after 1900 were identified in good contexts at the site, (2) a drastic shift is documented for the site vicinity in 1900, and (3) all the artifacts from this site appear to have been available between 1880 and 1900, it is reasonable to offer 1880 to 1900 as the period during which the Deerfly site was most likely occupied [Lees 1985:109].

Here Lees persists in placing the date of occupation earlier than I would based on the same evidence (I prefer a date around 1900 to 1910), although we can certainly be sure that there were people around here at the end of the nineteenth century and the beginning of the twentieth century. While it is possible that some of the aboriginal and trade artifacts may come from an earlier occupation since cultural horizons do not seem to be that clear, a Euro-American occupation of this site probably would have been manifested with different collections of artifacts (as Lees states on p. 119). Historical records do indicate that it is more likely that the occupation prior to the turn of the century was Dakota than it was Euro-American. Both the records and the artifactual evidence also suggest that this was a slight and brief occupation.

Movement of white settlers, the railroads, and other disruptive elements make it more and more unlikely that there could have been a stable or significant Indian presence for any extended period of time. There was such overwhelming American intrusion close-by as to make manifest a tremendous artifactual and folkway change in the life styles of any Indians who chanced to live in the general vicinity. That was certainly true by 1880. Railroads and land booms are the dominant themes of that period in South Dakota history. Sporadic and erratic occupation by Sioux families in such an area would not be definably different from such occupation by casual white settlers. No documentary or artifactual evidence is convincing in making any conclusion about historical effect or significance from either action.



Indices of territorial growth in 1882. Note the Black Hills settlements, the new towns, the rapid advance of railroad building, and the shrinking Indian reservations.



Agricultural regions and lines of settlement in Dakota Territory, 1860–90.

APPENDIX 12

Specialist Report - Report on the Soils at Sites 39GR53 and 39LM33
by Dr. Frederick Westin

SPECIALIST REPORT
Report on the Soils at Sites 39GR53 and 39LM33
by Frederick Westin

TO: L. Adrien Hannus, Director
Peter Winham, Assistant Director

FROM: Fred Westin, Soils Consultant

SUBJECT: Field inspection of site 39GR53, Gregory County, S.D. and site 39LM33 Lyman County, S.D.

These two sites were visited over a 2-day period, June 22 and 23, 1986.

Site 39GR53

I arrived at the site about 4 p.m. on June 22 after driving from Brookings by personal car. A trench about 6 meters long and 70 cm deep had been dug with a backhoe. The end of the trench was several meters back and at right angles to the open water of Whetstone Bay. The site itself was on a south facing bench about .5 km wide. The elevation was about 1375 feet. Several small streams flowed across the bench draining the cretaceous shale uplands. The vegetation appeared to be native grassland with a high percentage of western wheatgrass.

The soil profile exposed along the walls of the trench exhibited no evidence of disturbance. Below is a brief profile description.

A1	0-25 cm. Very dark gray silty clay, granular structure
B2t	25-60 cm. Dark gray silty clay, prismatic structure
B2	60-70 cm. Dark gray clay, massive

The entire profile was calcareous, although the A1 horizon had less effervescence than the B2t and B2 horizons. The evidence of uninterrupted soil development is the slight leaching of the A1 and the slight migration of clay from the A1 to B2t horizons.

A second trench was dug east of trench #1. The profile exposed was similar to that exposed in trench #1 except that the A1 horizon had been leached of free carbonates. There also was indication of pedoturbation or mixing by animals of lighter-colored lower-lying materials with the darker-colored material from near the surface. This appeared to be a natural mixing not interrupted by human activity.

We returned to Lake Andes about 7 p.m.

Site 39LM33

We arrived at the Lyman County site about 10:40 a.m., June 23. This site lies about 4 miles north of Oacoma, on the west side of the reservoir. The site is an old alfalfa field occupying a bench or terrace 1-2 meters above the water. There also was evidence of a plow pan in the soil profile. These soil materials in general appeared to be a calcareous coarse silt (loess) blown to its present position from the Missouri River bottomland before the inundation by the reservoir water.

The soil at this site was examined using a Giddings probe mounted on a tractor. A preliminary, or trial, profile is described below:

	A1p	0-20 cm.	Grayish brown coarse silt, non-calcareous
	B21	20-50 cm.	Light grayish brown coarse silt, slightly calcareous
	B22	50-65 cm.	Similar to B21 but moderately calcareous
	C	65-100cm+	Coarse silt, high effervescence
Profile #1	A1p	0-8 cm.	Grayish brown coarse silt, platy structure
	B1cc	8-25 cm.	Light grayish brown coarse silt or very fine sand, prismatic structure
	B?ca	25-50 cm.	Similar to B1cc but carbonates in soft concretions
	Cca	50-80 cm+	Massive coarse loess
Profile #2	A1p	0-9 cm.	Grayish brown coarse silt of platy structure
	B1cc	9-25 cm.	B1cc light grayish brown coarse silt, prismatic structure
	B2ca	25-55 cm.	B2ca very light grayish brown calcareous silt, weak prismatic structure

The trial profile and profiles 1 and 2 were punched along a line parallel to the reservoir and back about 50 meters from the water. The 3 profiles were considered to be undisturbed by human activity except for having been plowed. The next profile was punched in a shallow circular swale at the north end of the terrace before it was interrupted by an east flowing stream. This is designated as profile 3 and here charcoal was encountered at 90 cm and at 1m 80 cm more charcoal was found along with a bone fragment. More charcoal was found at 2m 80 cm. The entire soil column appeared disturbed. Below the bone fragment the soil material was finer textured and olive in color indicating shale bedrock.

Profile #4 was punched after lunch at a spot about 30 meters west of profile #3. The soil was noncalcareous above 10 cm; at 60-70 cm there was evidence of disturbance and charcoal and bone fragments were noted. A transition to shale occurred at 2m 20 cm and shale was encountered at 3m. The shale was high in gypsum.

Profile #5 was dug in a weed patch in a site excavated by the Smithsonian in 1953.

Profile #5	A1p	0-10 cm.	
	B1	10-42 cm.	
	A1b1	42-55 cm.	buried?
	B2c	55-1m 35	
	A1b2	1m 35 - 1m 60	buried?
	Bb2	1m 60 - 2m 20	
	Shale		

This appears to be a 2 or 3 story profile with several buried soils possible. This could be due to filling an excavation.

Profiles #6 and #7 also were punched in the weed patch and appeared to be similar to profile #5.

Profile #8 was punched in a small trench above the lower lying swampy tributary stream bottom. This profile also resembled #5.

Profile #9 was punched in a slight depression near profile #3. Here bone and charcoal fragments occurred in the 70-95 cm horizon shale was encountered at 2m. The profile was disturbed.

Field study of site 39GR53, Gregory County, and site 39LM33, Lyman County, June 22 and 23, 1986. Soil descriptions and notes by Fred Westin.

Site 39GR53

Profile Description

A1 0-25 cm Very dark gray (2.5Y 4/1) silty clay (2.5Y 3/1) moist; weak medium and fine subangular blocky structure parting to moderate fine granular; hard, firm, sticky and plastic; weak effervescence; gradual smooth boundary.

B2t 25-60 cm Dark gray (2.5Y4/1) silty clay, dark grayish brown (2.5Y 4/1) moist; weak very coarse prismatic structure parting to moderate, medium and coarse blocky; extremely hard, very firm, very sticky and very plastic; shiny pressure faces on peds; common fine and medium tongues of A1 horizon; strong effervescence; gradual wavy boundary.

B2 60-70 cm Colors similar to above horizon, massive structure, extremely hard, very firm, very sticky and very plastic; strong effervescence.

Site 39LM33

Profile Description Trial Test

A1p 0-20 cm Grayish brown (10 YR 5/2) coarse silt to very fine sandy loam, dark grayish brown (10 YR 4/2) moist; weak fine granular structure; soft, very friable; no effervescence; abrupt smooth boundary.

B21 20-50 cm Light brownish gray (10 YR 6/2) coarse silt to very fine sand, dark grayish brown (10 YR 4/2) moist; weak coarse subangular blocky structure; slightly hard, very friable; slight effervescence, clear smooth boundary.

B22 50-60 cm Light brownish gray (10 YR 6/2) coarse silt to very fine sand, dark grayish brown (10 YR 4/2) moist; weak subangular blocky structure; soft, very friable; moderate effervescence; clear smooth boundary.

C 65-100 cm Light brownish gray (10 YR 6/2) coarse silt, grayish brown (10 YR 5/2) moist; massive structure; soft, very friable; strong effervescence.

Profile 1

A1p 0-8 cm Grayish brown (10 YR 5/2) coarse silt to very fine sandy loam, dark grayish brown (10 YR 4/2) moist; weak platy structure; soft, very friable; no effervescence; abrupt smooth boundary.

B1cc 8-25 cm Light brownish gray (10 YR 6/2) coarse silt to very fine sand, dark grayish brown (10 YR 4/2) moist; weak prismatic structure; slightly hard, very friable; moderate effervescence; clear smooth boundary.

B2ca 25-50 cm Light brownish gray (10 YR 6/2) very fine sand to coarse silt, dark grayish brown (10 YR 4/2) moist; weak prismatic structure; slightly hard, very friable; moderate effervescence, many soft white calcareous concretions; clear smooth boundary.

Cca 50-80 cm+ Light brownish gray (10 YR 6/2) coarse silt, grayish brown (10 YR 5/2) moist; massive structure; soft, very friable; strong effervescence.

Profile 2

A1p 0-9 cm Grayish brown (10 YR 5/2) coarse silt to very fine sandy loam, dark grayish brown (10 YR 4/2) moist; weak platy structure; soft, very friable; no effervescence; abrupt smooth boundary.

B1cc 9-25 cm Light brownish gray (10 YR 6/2), coarse silt to very fine sand loam, dark grayish brown (10 YR 4/2) moist; weak prismatic structure; slightly hard, very friable; moderate effervescence; clear smooth boundary.

B2ca 25-55 cm Light brownish gray (10 YR 6/2) coarse silt, grayish brown (10 YR 5/2) moist; weak prismatic structure; slightly hard, very friable; moderate to strong effervescence.

Profile 3

1) 0-150 cm Disturbed soil material consisting of light brownish gray (10 YR 6/2) coarse silt to very fine sandy loam, dark grayish brown (10 YR 3/2) moist; massive; slightly hard, very friable; slight to moderate effervescence; abrupt boundary.

2) 150-160 cm Disturbed soil material consisting of dark gray (2.5 Y 4/1) silty clay, very dark gray (2.4Y 3/1) moist; massive; hard, firm, sticky and plastic; abrupt boundary.

3) 160-170 cm Disturbed soil material similar to 0-150 cm layer.

4) 170-180 cm Disturbed soil material similar to 150-160 cm layer.

5) 180-200 cm Disturbed soil material of light brownish gray (10 YR 6/2) coarse silt to very fine sandy loam, dark grayish brown (10 YR 3/2) moist; massive; slightly hard, very friable; slight effervescence; abrupt boundary. Contains a large bone fragment.

6) 200-260 cm A continuation of the 180-200 cm layer but lacking any bone fragments.

7) 260-280 cm Disturbed soil material consisting of dark gray (2.5Y 4/1) clay or silty clay, very dark gray (2.5Y 3/1) moist; massive; hard, firm, sticky and plastic; slight effervescence; flecks of charcoal present; gradual irregular boundary.

8) 280+ Dark gray (2.5Y 4/1) clay shale, very dark gray (2.5Y 3/1) weakly bedded; hard, firm, sticky and plastic; moderate effervescence.

Profile 4

Alp 0-10 cm Grayish brown (10 YR 5/2) coarse silt to very fine sand, dark grayish brown (10 YR 4/2) moist; weak platy structure; soft, very friable; no effervescence; abrupt smooth boundary.

C1 10-60 cm Light brownish gray (10 YR 6/2) coarse silt to very fine sand, dark grayish brown (10 YR 4/2) moist; massive; slightly hard, very friable; moderate effervescence; clear smooth boundary.

C2 60-70 cm Disturbed soil material having flecks of charcoal and bone present. The soil material is similar in color, consistence, and effervescence to the horizon above.

C3 70-170 cm Disturbed soil material similar to 10-60 cm horizon described above, abrupt smooth boundary.

II 170-210 cm Weakly bedded shale high in gypsum. The shale is dark gray (2.5 Y 4/2) clay, dark grayish brown (2.5Y 4/2) moist; very sticky and very plastic.

Profiles 5, 6, 7, and 8 are similar in major horizons but differ slightly in horizon thickness, especially the surface horizon. Each of these profiles have two discernible buried horizons. See attached page photocopied from "Soil Taxonomy". These profiles are called Fluvents and they occur on floodplains where streams drain from a watershed where dark colored soils called Mollisols are found. Sometimes these soils are called multi-story or 2 or 3 story profiles. At times the horizons are buried by alluvium and at times by wind-blown silt called loess. Profile 5 is described below. Profiles 6, 7, and 8 are similar in color, texture, consistence, horizon boundaries and degree of effervescence.

Profile 5

Alp 0-10 cm. Grayish brown (10 YR 5/2) coarse silt to very fine sand, dark grayish brown (10 YR 4/2) moist; weak platy structure; soft, very friable; slight effervescence; clear smooth boundary.

B 10-42 cm. Light brownish gray (10 YR 6/2) silt loam, dark grayish brown (10 YR 4/2) moist; weak prismatic structure; slightly hard, very friable; slight effervescence; clear smooth boundary.

A1B1 42-55 cm Dark grayish brown (10 YR 4/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak fine blocky structure; slightly hard, very friable; slight effervescence; abrupt smooth boundary.

B2 55-135 cm Light brownish gray (10 YR 6/2) silt loam, grayish brown (10 YR 4/2) moist; weak prismatic structure; slightly hard, very friable; moderate effervescence; gradual smooth boundary.

A1B2 135-160 cm Dark grayish brown (10 YR 4/2) coarse silt, very dark grayish brown (10 YR 3/2) moist; weak fine blocky structure; slightly hard, very friable; moderate effervescence; gradual smooth boundary.

Bb2 160-220 cm Light brownish gray (10 YR 6/2) coarse silt to very fine sand, dark grayish brown (10 YR 4/2) moist; very weak prismatic structure; slightly hard, very friable, moderate effervescence; abrupt smooth boundary.

II Shale substratum. Dark gray (2.5Y 4/1) clay, dark grayish brown (2.5Y 4/2) clay; extremely hard dry, very sticky and very plastic moist.

Profile 9

A1p 0-15 cm Grayish brown (10 YR 5/2) coarse silt to very fine sandy loam, dark grayish brown (10 YR 4/2) moist; weak fine granular structure; soft, very friable; no effervescence; abrupt smooth boundary.

B 15-70 cm Light grayish brown (10 YR 6/2) coarse silt to very fine sandy loam, dark grayish brown (10 YR 4/2) moist; very weak prismatic structure; slightly hard, very friable; slight effervescence; clear smooth boundary.

A1b 70-95 cm Grayish brown (10 YR 5/2) coarse silt to very fine sandy loam, dark grayish brown (10 YR 4/2) moist; weak fine granular structure; soft, very friable; slight effervescence; a few flakes of charcoal; gradual smooth boundary.

C1 95-100 cm Light brownish gray (10 YR 6/2) coarse silt to very fine sand, dark grayish brown (10 YR 4/2) moist; massive structure; soft, very friable; moderate effervescence; bone fragments; gradual smooth boundary.

C2 100-200 cm Morphological features similar to those of horizon above but at 140 cm a slight darkening occurred which was interpreted to be a buried horizon.

II 200 cm+ Dark gray (2.5 Y 4/1) silty clay, dark grayish brown (2.5 Y 4/2) moist; bedded shale; extremely hard dry, very sticky and very

C1 18–50 cm. Light brownish gray (10YR 6/2) silt loam; few strata less than 1 cm thick of silty clay loam; dark grayish brown (10YR 4/2) moist; structureless; bedding planes are evident; friable (moist); few mica flakes; few snail shell fragments; few dark yellowish brown and strong brown organic stains along bedding planes; few roots; few fine pores and wormcasts; calcareous; moderately alkaline; clear boundary.

C2 50–150 cm. Pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; thin strata and lenses of very fine sandy loam and silty clay loam; structureless; many bedding planes; slightly hard (dry); very friable (moist); few mica flakes; few roots; few root channels and bedding planes have brownish organic stains; calcareous; moderately alkaline.

Figure 37.—A Fluvent on a floodplain of a stream draining a watershed in which most upland soils are Mollisols. Organic carbon decreases irregularly with depth because there are buried A1 horizons. Ellsworth County, Kan.

Distinctions between Typic Ustifluvent other subgroups

Typic Ustifluvents are the Ustifluve
a. Do not have mottles within 50 c
that have chroma of 2 or less and
depth within 1.5 m of the surface,
saturated with water at some perio
drained and that has chroma less
bluer than 10Y; and
b. Do not have the following combi
teristics:

(1) Cracks at some period in
the soil is not irrigated, that a
wide at a depth of 50 cm, that
long in some part, and that exte
soil surface or to the base of an A
(2) A coefficient of linear exte
of 0.07 or more in a horizon or
50 cm thick and a potential line
6 cm or more in the upper 1.25
the whole soil if a lithic or pa
deeper than 50 cm but shallower
(3) More than 35 percent clay
total >50 cm in thickness.

c. Have an Ap horizon that has a c
of 4 or more or has a color value,
when crushed and smoothed, or the
cm thick if its color value, moist, is

Aquic Ustifluvents are like Typic
cept for *a* or for *a* and *c*.

Mollic Ustifluvents are like Typic
cept for *c*.

Vertic Ustifluvents are like Typi
cept for *b* or for *b* and *a*.

Description of subgroups

Typic Ustifluvents.—These are the
have good or moderately good drai
not have a fine particle-size class an
ing type in a major part of the up
are in relatively high places on floo
water table is deeper than 50 cm
enough of the time that there are no
low chroma (2 or less) accompanied
the mottled zone within a depth of 5
the layers between a depth of 50 a
have periods of saturation long
chroma is less than 1 or the hue is blu

There are normally few or no ev
tion of the fine stratifications of
though in some Ustifluvents that h
fine particle-size class, stratifications
difficult to see. Typic Ustifluvents a
streams in the subhumid or semia
Great Plains in the United States a
sive in many other countries. Ma
farmed, with or without irrigation.
for summer grazing.

Aquic Ustifluvents.—These soils
water table than Typic Ustifluvents
sists for longer periods within a dep
commonly either have some mottles